



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

EVOLUTION OF RESCUE: PERSONNEL RECOVERY FOR A NEW ENVIRONMENT

by

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December 2007

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REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE December 2007	3. REPORT TYPE AND DATES COVERED Master's Thesis	
4. TITLE AND SUBTITLE Evolution of Rescue: Personnel Recovery for a New Environment			5. FUNDING NUMBERS	
6. AUTHOR(S) Major David C. Meggett, USAF				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.			12b. DISTRIBUTION CODE	
13. ABSTRACT (maximum 200 words) <p>The Air Force view of Personnel Recovery (PR) has historically focused almost exclusively on Combat Search and Rescue (CSAR) of downed aircrews. Recent operations have seen a marked decrease in aircraft shootdowns, and have correspondingly tasked USAF Combat Rescue forces with non-CSAR missions in support of a variety of customers. This thesis examines the changing environment in which Combat Rescue forces are employed; evaluates the ability of these forces to perform PR tasks within an Irregular Warfare campaign; and makes recommendations regarding where and under whose control rescue assets should be employed.</p>				
14. SUBJECT TERMS Personnel Recovery (PR), Combat Search and Rescue (CSAR), Irregular Warfare (IW), Special Operations Forces (SOF)			15. NUMBER OF PAGES 71	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18

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**EVOLUTION OF RESCUE: PERSONNEL RECOVERY FOR A NEW
ENVIRONMENT**

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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN DEFENSE ANALYSIS

from the

**NAVAL POSTGRADUATE SCHOOL
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ABSTRACT

The Air Force view of Personnel Recovery (PR) has historically focused almost exclusively on Combat Search and Rescue (CSAR) of downed aircrews. Recent operations have seen a marked decrease in aircraft shootdowns, and have correspondingly tasked USAF Combat Rescue forces with non-CSAR missions in support of a variety of customers. This thesis examines the changing environment in which Combat Rescue forces are employed; evaluates the ability of these forces to perform PR tasks within an Irregular Warfare campaign; and makes recommendations regarding where and under whose control rescue assets should be employed.

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ACKNOWLEDGMENTS

I'd like to thank my family for enduring the frustrations both of my increased presence and practical absence. It isn't likely to be repeated in my career, but it was enjoyable!.

I'd like to thank Col Greenshields for his empathy and for just "getting it" all around. My hat is also off to my impromptu advisor, Professor Gustaitis, who put up with my extended hemming and hawing without complaint, and provided an impartial voice to my parochial rants.

Finally, I greatly appreciate the insights gleaned from my fellow students, US and otherwise, who have opened my eyes to a larger military and larger world; and from faculty that never shirk from informing the Emperor that his wardrobe needs retooling.

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I. INTRODUCTION

The 2006 Quadrennial Defense Review Report identifies Afghanistan and Iraq as indicative of the shift in warfare from major conventional combat to multiple, asymmetric operations.¹ While Air Force Combat Rescue forces are specifically organized, trained, and equipped for major combat operations, their role in current and future Irregular Warfare remains ad hoc and ambiguous. While highly capable, rescue forces lack an integrating vision of their potential contribution to the Global War on Terror (GWOT). As a result, they remain underutilized and marginalized within the theater air component. Overcoming this obstacle will require a broader focus on Personnel Recovery (PR) within the Air Force, and a willingness to commit fully to PR in an Irregular Warfare environment – to include placing Combat Rescue forces under the tactical control of other components or agencies.

A. BACKGROUND

17 January 2002 was a watershed day in the history of Combat Search and Rescue (CSAR). It marked the first “save” awarded to US Air Force (USAF) Combat Rescue forces in combat since the end of the Vietnam War. The previous thirty years had seen the gradual atrophy and dismemberment of these forces until, on the eve of the first Gulf War, they essentially possessed no combat capability. Special Operations Forces (SOF) were tasked to provide CSAR coverage for downed aircraft, to mixed reviews and to the detriment of their primary missions in support of special operations. This trend continued throughout the 1990s, when SOF again provided CSAR alert in the Balkans.² In all, SOF recovered five downed aircrew in combat operations.

USAF Combat Rescue forces, however were slowly being rebuilt during this time, and would eventually replace SOF in the no-fly zones surrounding Iraq. For several years, very expensive and highly trained forces stood by, ready to launch at a moment’s

¹ United States Department of Defense, *Quadrennial Defense Review Report*, (Washington, DC: Office of the Secretary of Defense, 6 February 2006), vii.

² Lee K. dePalo, “USAF Combat Search and Rescue: Untapped Combat Power,” (Maxwell AFB, AL: Air University Press, 2005), 6.

notice to rescue any downed Coalition aircrew in Iraq. The continuous alert coverage took its toll on the small fleet of specialized, Low Density/High Demand (LD/HD) aircraft³, and rescue crews repeatedly had the highest deployment rates in the Air Force. While thankfully none of the aircraft patrolling the no-fly zones was ever shot down, Combat Rescue crews provided an ever-present insurance policy. This policy came at a price, however. The constant cycle of deployment to sit ground alert reduced aircrew retention, lowering the experience levels in rescue units, and hampered the ability to conduct normal flying training. These were cited as contributing factors in a tragic mid-air collision between two HH-60s in September 1998.⁴ It was not until the months following 9/11, however, that Combat Rescue forces would employ in actual combat in Afghanistan.

The combat environment, however, was unlike anything these forces had trained for; there was no enemy air force or air defense system to contend with. The high, rugged terrain and poor visibility limited aircraft performance and demanded extreme flying skill. And most importantly, there were no lines to define enemy and friendly territory. The rescue forces settled into their new bases in and around Afghanistan and waited.

When the call came, it was not for downed pilots.

Instead, CSAR forces extracted stranded special operators; evacuated critically wounded Afghan and US soldiers in weather conditions in which other aircraft were unable to fly; and brought Afghan children who had been injured to US forces for help. On the night of 17 January 2002, the call was for an Australian SF soldier injured in a minefield. Three pararescuemen (PJs) jumped out of a rescue HC-130 at 10,000 feet, at night, into a minefield. Landing safely, the PJs treated the soldier until rescue HH-60s arrived to evacuate them. The crews involved were recognized with a combat save.

This incident began a new trend for Combat Rescue forces; their missions no longer resembled the traditional CSAR aircrew recovery. The rescue crews' long-range,

³ LD/HD assets include rescue, AWACS, certain reconnaissance, and special operations aircraft.

⁴ Jamie McIntyre, "A deadly helicopter accident and the debate on military readiness," *Cable News Network*, [website]; available from <http://archives.cnn.com/2000/US/09/06/military.readiness/>; Internet; accessed 29 September 2007.

rapid response, willingness to fly in poor conditions, and the PJs medical expertise placed them in high demand for exfiltration and MEDEVAC – but not from the air component that controlled them. As there was little threat to allied aircraft, the rescue forces became a force in search of a way to contribute to the overall theater campaign. The air component, however, did not share Combat Rescue’s enthusiasm for an expanded mission. Per doctrine, the rescue forces provided CSAR alert coverage for air component assets. If another component needed rescue support, it could make a request through the Joint Search and Rescue Center (JSRC), where its priority was evaluated against other alert requirements before the Combined Forces Air Component Commander (CFACC) allowed use of its rescue forces.

Events in Iraq proceeded in a similar fashion. Combat Rescue forces were deployed in massive numbers for IRAQI FREEDOM, and rescued a total of one F-14 crew that ejected after suffering mechanical failure. Most of the rescue forces were redeployed at the end of major combat operations, but those who remained faced a familiar lack of utilization. Unlike the rugged terrain of Afghanistan, where Army helicopter weather restrictions pressed Combat Rescue into MEDEVAC service, the more benign conditions of Iraq made even MEDEVAC missions a rarity. During a seven month span in 2004, the crews sitting CSAR alert did not receive a single tasking.⁵ Despite this, Combat Rescue forces still maintain CSAR alert in Iraq today.

Doctrinally, the shift in focus away from downed pilots was codified 2005, when *Air Force Doctrine Document 2-1.6, Combat Search and Rescue Operations*, was renamed *Personnel Recovery Operations*. The doctrine recognizes that although recovering downed airmen is important, the ability to recover personnel of all components (and civilians) contributes to the overall campaign – particularly in Irregular Warfare.⁶ But the doctrine still emphasizes the importance of the CSAR task force – fundamentally unchanged since Vietnam – as the basic construct for employment, ignoring the environmental realities that exist on the modern battlefield.

⁵ dePalo, 12.

⁶ United States Air Force, *Air Force Doctrine Document 2-1.6, Personnel Recovery Operations*, (Washington, DC: Headquarters US Air Force, 1 June 2005), xx.

B. WHAT IS PERSONNEL RECOVERY?

Personnel recovery is a blanket term that encompasses several methods of returning isolated persons in distress to friendly control. *Joint Publication 3-50, Joint Doctrine for Personnel Recovery*, provides the following definition:

Personnel recovery (PR) is the sum of military, diplomatic, and civil efforts to affect the recovery and reintegration of isolated personnel. Isolated personnel are those US military, DOD civilians, and DOD contractor personnel who are separated (as an individual or group) from their unit while participating in a US-sponsored military activity or mission and who are, or may be, in a situation where they must survive, evade, resist, or escape.⁷

Options for conducting PR can be diplomatic (through Department of State or other negotiating bodies), civil (via private citizens or non-governmental organizations), or military. While typically only the physical “rescue” portion is considered, PR consists of five essential tasks: Report, Locate, Support, Recover, and Reintegrate.⁸ For the purposes of this study, we will consider mainly the “recover” function of PR. The range of military recovery categories and methods typically available are shown in Figure 1.

Under current guidance, the individual joint force component commanders are responsible for the planning and conduct of PR operations within their areas (or as tasked by the Joint Force Commander [JFC]).⁹ The responsibility for organizing, training, and equipping PR forces, however, remains with the individual Service Chiefs.¹⁰ The services, including US Special Operations Command (USSOCOM), use slightly different methods to effect recovery: Combat Search and Rescue used by the Air Force and Navy; Tactical Recovery of Aircraft and Personnel (TRAP), used by the Marines, which is similar to CSAR but also includes physical recovery of disabled aircraft via heavy-lift helicopters; Nonconventional Assisted Recovery (NAR), which typically involve Special Forces-controlled networks of friendly agents; and Hostage Rescue, the province of elite SOF units.

⁷ United States Department of Defense, *Joint Publication 3-50, Joint Doctrine for Personnel Recovery* (Second Draft), (Washington, DC: Office of the Joint Chiefs of Staff, 11 May 2005), I-1.

⁸ AFDD 2-1.6, 6-7.

⁹ *Joint Pub 50-3*, II-5.

¹⁰ *Ibid.*, II-9.

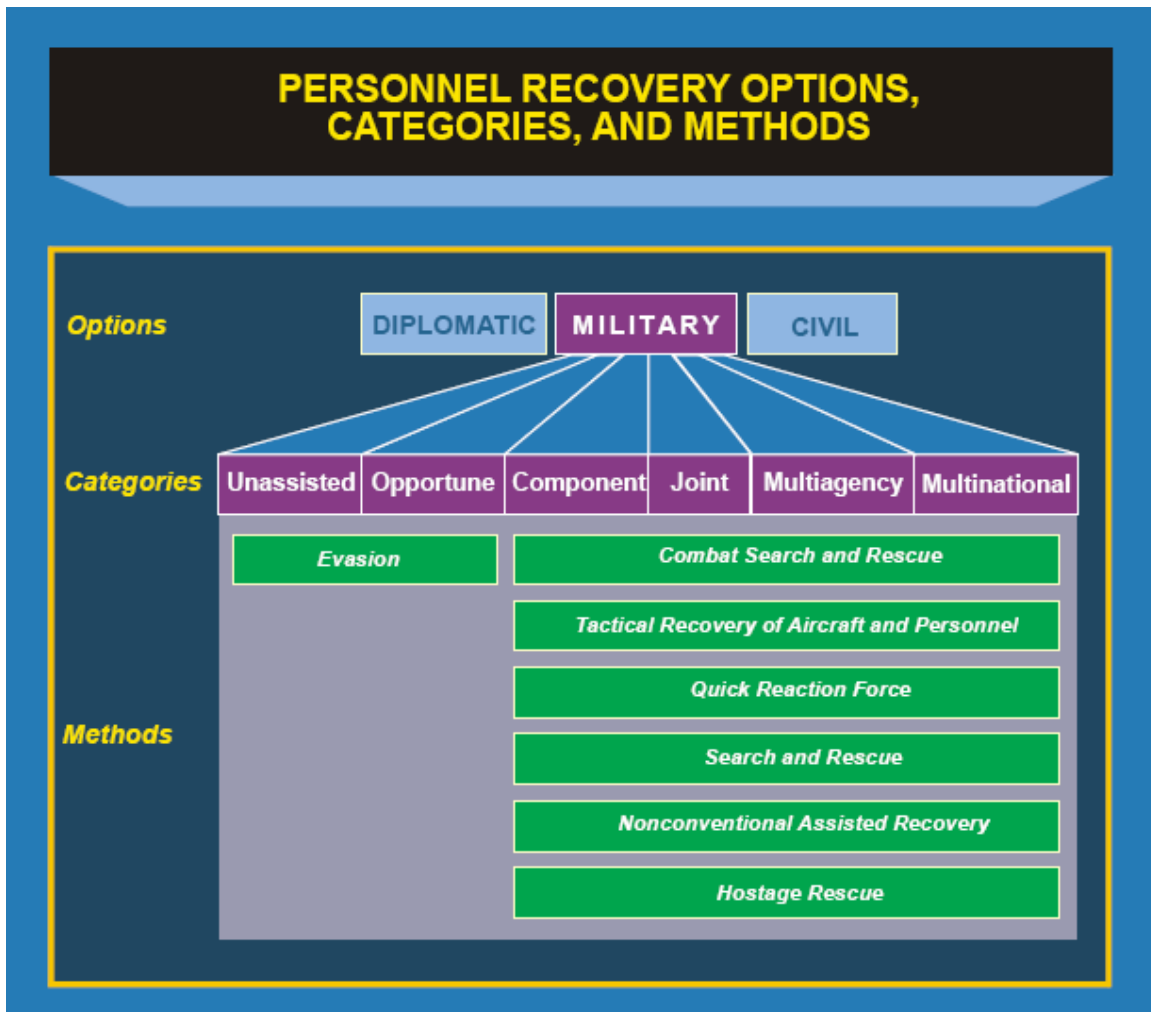


Figure 1. Personnel Recovery Options, Categories, and Methods (From *Joint Pub 50-3*)

Air Force Doctrine Document 2-1.6, Personnel Recovery Operations, further expounds that “CSAR is the Air Force’s method of choice for accomplishing the recovery task in uncertain, denied, or hostile environments.”¹¹ Recovery forces are traditionally marshaled into a CSAR Task Force (CSARTF) composed of rotary- and fixed-wing recovery aircraft with dedicated ground rescue specialists; fighter escort aircraft to neutralize air and ground threats, termed RESCAP and RESCORT respectively; airborne command and control; and tanker support. These so-called “gorilla packages”, developed during the Vietnam War, are designed to reduce the threat enough to allow helicopters to enter the area and pick up survivors.¹²

¹¹ *AFDD 2-1.6*, 10.

¹² *Ibid.*, 13.

CSAR can thus be seen as a specific subset of a larger PR construct. The Air Force is the only service that possesses a force specifically designed to conduct a PR mission (CSAR) – and only that mission. The USAF Combat Rescue forces are comprised of active-duty, Air Force Reserve, and Air National Guard units assigned to Air Combat Command in the CONUS, or Pacific Air Forces or US Air Forces Europe overseas. These units employ HH-60G Pave Hawk helicopters as a recovery vehicle; HC/MC-130P extended range refueling and support aircraft; and Guardian Angel pararescuemen and Combat Rescue Officers (CROs) who provide the linkage from aircraft to isolated personnel. The terms CSAR force, rescue force, and Combat Rescue will be used interchangeably to refer to those USAF forces charged with conducting the CSAR portion of Personnel Recovery.

C. PURPOSE OF THIS THESIS

Previous research on CSAR has focused mainly upon command and control of rescue forces during joint operations and how best to support the Joint Force Commander rather than individual components.¹³ While some of these reports have made recommendations on where rescue expertise should reside (USAF or USSOCOM), the rationale were based primarily on similarities between missions and providing an economy of force. Absent from this discussion, however, has been an examination of the mission's underlying environment and the significant changes that this environment has undergone. A change in the fundamental nature of rescue operations requires a re-evaluation of the ways and means by which these operations are conducted.

The goal of this thesis is to examine the evolution of the CSAR mission and the current asymmetric or “irregular” environment in which it operates; identify what capabilities airpower brings to Irregular Warfare, and how they relate to Personnel Recovery tasks; and evaluate potential ways the air component can better utilize the existing Combat Rescue force, providing a more unified vision of the role of Personnel Recovery in supporting national strategy and theater objectives in Irregular Warfare.

¹³ See Timothy R. Minish, “The Joint Rescue Task Force: Dedicated CSAR Capability for the Theater CINCs,” (Unpublished Research Paper, Naval War College, 14 June 1998), and Darren T. Hansen, “Combat Search and Rescue: Should it be a Joint Requirement?” (Unpublished Research Paper, Naval War College, 5 February 2001), for more comprehensive for discussion of joint employment constructs.

II. HISTORY OF CSAR 1990-2001

The failed Iranian hostage rescue attempt, Operation EAGLE CLAW, highlighted a glaring lack of long-range special operations airlift capability. The Air Force's answer was a program known as "Forward Look", which transferred all of the Aerospace Rescue and Recovery Service's (ARRS) newest aircraft, the HH-53 Pave Low, and their HC-130 tankers to special operations units.¹⁴ While the concept was designed to provide theater commanders with a capabilities-based force that could conduct CSAR and special operations, the Air Force fought to keep the CSAR mission while USSOCOM sought to divest it.¹⁵ The ARRS maintained responsibility for CSAR, but no longer possessed any combat capable aircraft. It was hardly surprising that SOF would ultimately be tasked with providing recovery forces to repel the Iraqi invasion of Kuwait.

A. DESERT STORM

1. Composition of Rescue Forces

As planning progressed to counter the Iraqi forces, it quickly became apparent that the rescue forces required to execute air operations were in effect non-existent. This led CENTCOM commander General Norman Schwarzkopf to place recovery missions under the purview of the only component with sufficient rescue expertise and forces – SOCCENT. The special operations component was given the primary responsibility for conducting CSAR in support of Coalition forces in hostile territory. SOF aviation fell under the direction of Colonel George Gray, the commander of the 1st SOW, and his director of operations, Colonel Bennie Orrell. Colonel Orrell was a career rescue helicopter pilot, and had been awarded the Air Force Cross for a rescue over Laos in 1972.¹⁶ The CSAR effort would be in the hands of seasoned experts who knew what a helicopter was – and was not – capable of doing in combat.

¹⁴ Darrel D. Whitcomb, *Combat Search and Rescue in Desert Storm*, (Maxwell AFB, AL: Air University Press, 2006), 27.

¹⁵ United States Special Operations Command, "USSOCOM History, 1987-2007," [document online]; available from http://www.socom.mil/Docs/Command_History_26Feb07webversion.pdf; Internet; accessed 13 May 2007, 19.

¹⁶ Darrel D. Whitcomb, "The Non-Rescue of Corvette 03," *Air and Space Power Journal* (Spring 2004) : 104.

Upon arrival, the rescue forces immediately assumed CSAR alert duty. CSAR was SOCCENT's highest priority; other special operations taskings were secondary. The use of highly-specialized and very expensive equipment for ground alert duties instead of SOF support drew ire from within SOCOM, but the forces were tasked in accordance with the theater commander's priorities.¹⁷ MH-53Js from the 20th SOS and MH-60s from the 55th SOS provided 24-hour CSAR alert coverage for the duration of the war, with at least four aircraft available at all times.¹⁸ Further support was provided by the Army's 160th Special Operations Aviation Regiment. MH-60s from the 3/160th maintained CSAR alert at forward locations in concert with the AFSOC helicopters.¹⁹

The Navy provided organic CSAR coverage for Coalition forces over the Gulf, but also detailed aircraft and crews from its reserve rescue units, HCS-4 and HCS-5, to SOCCENT to augment the CSAR effort – to include a SEAL detachment to assist in recoveries.²⁰

The final piece in SOCCENT's CSAR umbrella was composed of EUCOM forces operating in Turkey. Designated PROVEN FORCE, the SOF component provided MH-53s and MC-130s to cover CSAR operations north of the 33rd parallel.²¹

Colonel Orrell and other rescue veterans had learned a hard lesson about helicopter survivability in Vietnam and at Koh Tang Island during the USS *Mayaguez* rescue attempt. Charging into a high threat area for a rescue attempt was only going to result in the loss of more assets, with helicopters being the most vulnerable; an analysis of the existing threat relative to the survivor's location was necessary before launching a mission.²² SOF planners attempted to mitigate this by preparing potential routes throughout Iraq to be used on short notice. These air corridors went throughout the areas of Iraq that a helicopter would be able to penetrate. The planners also sectioned Iraq into areas where daylight rescue would be possible, where rescue was only possible at night,

¹⁷ Whitcomb, *Combat Search and Rescue in Desert Storm*, 48.

¹⁸ Minish, 20.

¹⁹ "Desert Shield/Desert Storm," *160th SOAR*, [website]; available from <http://www.nightstalkers.com/history/desert.html>; Internet; accessed 25 August 2007.

²⁰ Whitcomb, *Combat Search and Rescue in Desert Storm*, 64.

²¹ Ibid., 74.

²² Darrel D. Whitcomb, *The Rescue of BAT-21*, (Annapolis: Naval Institute Press, 1998), 151.

and where rescue would be unlikely due to the threat.²³ To preserve his valuable assets from misuse, Colonel Gray required that radio contact be established with a survivor and their location known before his helicopters would be launched for a CSAR mission.

2. Command and Control of Rescue Forces

Although the Air Rescue Service (ARS) did not have aircraft to support DESERT SHIELD/DESERT STORM, they did have personnel to man the theater Joint Recovery Coordination Center (JRCC). The JRCC was to work directly for the J-3 on the CINC's staff. Their job was to ensure integration of effort among the various components in theater. In addition, any mission beyond any component's abilities was referred to the JRCC to direct. Each component was also expected to have organic forces available for rescue missions at the JRCC's request, yet each maintained operational control for launch of its own forces.²⁴

The JRCC was located within the air component's Tactical Air Control Center (TACC). Although the JRCC still worked for the CINC and not the air component, the TACC provided the best and most up-to-date information about ongoing air missions and would most likely be the first to learn of a shoot-down.²⁵ The TACC also handled most of the additional assets (especially A-10s) that would form a CSARTF.

Per doctrine, operational control (OPCON) of special operations assets would remain with SOCCENT for the duration of the campaign. Those forces tasked for CSAR alert would be under the tactical control (TACON) of the JFACC only after launch. The determination to launch the helicopters, however, remained with the special operations component and the criteria that they had established. The JRCC, as a coordination element, could request support from each component, but could not order it.²⁶

3. Slate 46

At approximately 0320z on 21 January 1991, Slate 46, an F-14 crewed by Lieutenants Devon Jones and Larry Slade, was downed by an SA-2 surface-to-air missile. Initially, it was reported that two aircraft had been downed, and the JRCC passed the

²³ Joe E. Tyner, "AF Rescue and AFSOF: Overcoming Past Rivalries for Combat Rescue Partnership Tomorrow," (National Defense Fellows Research Paper, Naval Postgraduate School, 1996), 39.

²⁴ Whitcomb, *Combat Search and Rescue in Desert Storm*, 60.

²⁵ Tom Clancy and Chuck Horner, *Every Man a Tiger* (New York: Berkley, 1999), 394.

²⁶ Whitcomb, *Combat Search and Rescue in Desert Storm*, 61.

tasking on to SOCCENT. The alert forces at ArAr, Saudi Arabia, began planning for the recovery mission. Due to poor weather at ArAr, the all-weather MH-53s were chosen as recovery vehicles.²⁷

Commanded by Captain Tom Trask, Moccasin 05 launched through the heavy fog to the reported coordinates, along with A-10 Sandy aircraft and F-15 coverage. When the weather began to clear inside of Iraq, Trask searched the target area in vain until forced to return to ArAr to refuel. At 0905z, Sandy 57, Captain Paul Johnson, made voice contact with Jones and was able to verify his location. Trask and an additional MH-53 returned to the area while the Sandys refueled from an airborne tanker. After tanking, the A-10 rejoined with the helicopters and guided them to Jones' location. As the helicopters prepared to execute the pickup, Iraqi trucks rapidly approached the survivor. The A-10s destroyed the first truck while the second fled the area. Trask landed as Jones broke from his hiding spot and was brought aboard by the PJs. The package turned to the south and egressed back into Saudi Arabia. The rescue of Lieutenant Jones was the first successful combat recovery since Vietnam.²⁸

4. Corvette 03

The most controversial CSAR event of the war began on 19 January when Corvette 03, an F-15E crewed by Colonel Dave Eberly and Major Tom Griffith, was shot down by an SA-2 while flying a counter Scud mission. Eberly and Griffith ejected safely, and were able to link up on the ground. The flight lead radioed the approximate position that Corvette 03 had gone down, but there was no radio contact with the crew. JRCC passed this information on to SOCCENT. The location was well north of the 33-30 line and near the Syrian border, in an area well-defended by AAA and SAMs. Colonel Gray felt that the best chance of recovery would be PROVEN FORCE executing the mission out of Turkey, and proceeding through Syrian airspace to avoid Iraqi threats.²⁹

²⁷ Whitcomb, *Combat Search and Rescue in Desert Storm*, 151.

²⁸ Jeffrey S. Michalke, "Commando Heritage," 1st Special Operations Wing, [website]; available from <http://www.af.mil/shared/media/document/AFD-070110-237.pdf> 1/10/2007; Internet; accessed 9 July 2007.

²⁹ Whitcomb, *Combat Search and Rescue in Desert Storm*, 126.

While SOCCENT was awaiting diplomatic approval from Syria, other flights continued in the same area. Eberly and Griffith made brief radio contact with one of the strike groups, but the crews – who had not been briefed that there was a crew down – did not realize who they had heard.³⁰

That evening, another package, led by Griffith's squadron commander, heard Griffith's voice on the radio, and assured the JRCC that it was definitely Corvette 03. The F-15E crews were becoming more and more upset about a perceived lack of action by the JRCC and SOCCENT in launching rescue forces. They expected that all available assets would be directed to assist with recovery, as they had in Vietnam. When they requested sending a package of F-15Es specifically to find Eberly and Griffith, they were told that the F-15Es were needed striking other targets, specifically the politically-sensitive Scud launchers.³¹

After tapes of the radio transmissions had been reviewed, Colonel Gray approved the mission. PROVEN FORCE MH-53s and tankers planned to launch and fly through Syria before entering Iraqi airspace. The reported coordinates of the survivors varied by as much as twenty miles, which complicated the mission. The helicopter crews would attempt to make radio contact while flying in the general vicinity; if no response was received, they would egress back into Syria. Diplomatic clearance had not yet been granted, but the crews prepared to launch without it.³²

The rescue force launched that evening as scheduled, and eventually received clearance into Syria well after they were already in the airspace. The helicopters reached the target area and searched for 30 minutes without successful radio contact. Each attempt to use the radio was greeted by bursts of intense AAA. Dejected, the helicopters egressed the area and the package returned to Turkey. The crews did not know that Eberly and Griffith had been captured that day while attempting to reach the Syrian border on foot.³³

³⁰ Whitcomb, "The Non-Rescue of Corvette 03," 107.

³¹ Ibid., 107.

³² Ibid., 110.

³³ Ibid., 111.

5. Benji 53

Benji 53, an F-16 piloted by Captain Scott Thomas, began experiencing engine trouble while returning from a reconnaissance mission in Iraq on 17 February. When his engine seized, Thomas ejected and landed safely, still sixty miles into Iraq. His wingman, 1st Lieutenant Eric Dodson, verified Thomas' location and made radio contact with him. He relayed the information to AWACS for rescue coordination. As his fuel ran low, Dodson returned to base as an F-15E flight was diverted to Thomas' location.

Upon landing, Dodson was dismayed to hear rescue forces had not been launched. The alert forces at King Khalid Military City (KKMC), composed of MH-60s from the 3/160th, had not been told that positive contact had been made with Thomas. Dodson personally assured them that it had, and Chief Warrant Officer Tom Montgomery led a two-ship recovery into Iraq. AWACS helped vector the helicopters into the area, and Thomas used his infrared strobe to signal his location when he was unable to make radio contact. Montgomery spotted it, and soon had Thomas on board for the low-level return to KKMC.³⁴

The rescue of Benji 53 was the only successful night rescue of the war, executed by forces highly experienced in NVG operations. While there had been some grumbling early on about using SOAR assets for CSAR alert instead of traditional insertion and extraction missions, the attitude after Thomas' rescue was decidedly more upbeat.³⁵

6. Bengal 15/Mutt 41

Mutt 41, piloted by Captain Bill Andrews, was the flight lead of a four-ship of F-16s providing close air support to Army forces near Basra on 27 February. Andrews was shot down by enemy fire and captured immediately after ejected. An OA-10 in the area relayed Andrews' position, but did not witness his capture. When JRCC and SOCCENT plotted the position relative to the Republican Guard units in the area, they immediately decided that a rescue mission was out of the question. The threat was simply too high.³⁶

Word that no rescue would be launched made its way through the Battlefield Control Element to the ground forces, who decided through a series of

³⁴ Whitcomb, *Combat Search and Rescue in Desert Storm*, 198.

³⁵ "Desert Shield/Desert Storm."

³⁶ Whitcomb, *Combat Search and Rescue in Desert Storm*, 227.

miscommunications, to attempt their own rescue with Apaches and a Blackhawk. Despite repeated warnings from strike aircraft and forward air controllers in the area not to allow a helicopter in for a pickup, the Blackhawk, Bengal 15, was shot down, killing five crewmembers. Three others were captured immediately. The ground fire was so intense that the two Apaches had to return to base. No further attempts at rescue were made.³⁷

SOF attempted two other, unsuccessful rescues of aircrew (Stroke 65 and Jump 57); both involved searches during daylight and were accompanied by RESCORT aircraft.³⁸ In all, 38 aircraft were lost; seven CSAR missions were launched, resulting in three saves (the third was Wolf 01, an F-16, whose pilot ejected over the Persian Gulf and was rescued by USN helicopters).

The special operations forces in theater proved capable of performing the CSAR mission when feasible. CSAR alert coverage was provided constantly throughout the war; at no time were forces unavailable or given conflicting special operations taskings.³⁹ Although there was criticism of the criteria that SOCCENT used prior to launching a mission, the experience of Bengal 15 highlights that there were indeed areas that helicopters could not operate. None of SOCCENT's assets were lost during rescue operations. This also demonstrates the desirability for experienced SOF commanders to exercise control over their forces. While USAF Brigadier General Buster Glosson told his fighter pilots that there was nothing in Iraq worth dying for, he also told them that he would "stack helicopters on top of each other and get them all shot down" if required to rescue them.⁴⁰ If the helicopters had been under the operational control of the JFACC, it is possible that there might have been a faster response – but it is just as likely that assets would have been committed to situations where their capabilities were not understood, with resultant losses. SOF assets on alert did not hesitate to fly during daylight hours, and routinely flew with A-10 or F-16 RESCORT aircraft. Contrary to popular belief,

³⁷ Whitcomb, *Combat Search and Rescue in Desert Storm*, 238.

³⁸ Tyner, 42.

³⁹ Whitcomb, *Combat Search and Rescue in Desert Storm*, 263.

⁴⁰ *Ibid.*, 83.

CSAR forces launched on missions with nothing more than a coordinate and loitered for long periods of time, including during daylight, in enemy territory.⁴¹

B. POST-DESERT STORM OPERATIONS

SOF units remained engaged in CSAR coverage for the various operations that followed DESERT STORM, including DESERT CALM and SOUTHERN WATCH in the southern no-fly zone, and PROVIDE COMFORT and NORTHERN WATCH in the northern no-fly zone.⁴² In April of 1995, when USAF F-15s shot down two US Army Blackhawk helicopters over northern Iraq, MH-60 crews on CSAR alert flew a 15-hour marathon mission to recover the bodies of those killed.⁴³ This constant deployment demand – for a mission that was not a SOCOM priority – greatly restricted the ability of AFSOC units to maintain currency and readiness for their primary missions.⁴⁴ Combat rescue units, now armed with the new HH-60G Pave Hawk, would eventually take over these operations and maintain constant CSAR alert coverage until the invasion of Iraq in 2003. The small rescue forces were similarly hampered by the deployment requirements; they routinely surpassed USAF goals for annual days deployed and training levels fell below acceptable combat standards.⁴⁵ SOF units were tasked to cover shortfalls in rescue capability as late as 2000.⁴⁶ No allied aircraft were lost over Iraq between 1995 and 2003.

C. DENY FLIGHT

With re-tooled rescue forces tied up in no-fly zone CSAR coverage in Iraq, SOF was again tasked for providing theater rescue coverage in Bosnia. For Operation DENY

⁴¹ Whitcomb, *Combat Search and Rescue in Desert Storm*, 153.

⁴² Michalke, “Commando Heritage.”

⁴³ Tyner, 48.

⁴⁴ United States General Accounting Office, “Special Operations Forces: Opportunities to Preclude Overuse and Misuse,” (Washington, DC: GPO, May 1997), 14.

⁴⁵ McIntyre.

⁴⁶ Author’s notes, 4 Dec 1999 – 6 March 2000.

FLIGHT in 1995, seven MH-53s stationed at Brindisi, Italy, were responsible for CSAR in addition to normal special operations missions.⁴⁷

Sharing the CSAR duties were the Marines of the 24th Marine Expeditionary Unit (Special Operations Capable) aboard the USS *Kearsarge*. The 24th MEU(SOC) was positioned near the Croatian coast for execution of Tactical Recovery of Aircraft and Personnel (TRAP) taskings. The SOF helicopters were the primary force for night operations, while the MEU(SOC) would cover daylight.

When Basher 52, an F-16 flown by Captain Scott O'Grady was shot down over Bosnia, more than 500 missions were flown to search for him. Although his wingman did not witness the ejection and no radio contact had been made, both rescue forces were ready to go if called. Radio contact was established five days later, and the MEU(SOC) received the tasking.⁴⁸ The heavily-armed TRAP force left the *Kearsarge* two hours later and successfully recovered O'Grady.

Although SOF did not execute the recovery, DENY FLIGHT was another example of the air component having to rely upon assets beyond their operational control to execute a mission to recover a downed pilot – successfully.

D. ALLIED FORCE

SOF again would provide CSAR coverage for NATO operations in the Balkans in 1999. USAF rescue forces covering no-fly operations around Iraq were the most deployed units in the Air Force, and had suffered the tragic loss of twelve airmen and two helicopters in a training accident in Nevada in September of 1998.⁴⁹

During the 79-day air campaign against Serbia, CSAR would play a crucial role. The successful rescues conducted by SOF during Operation ALLIED FORCE allowed the US government to focus on the operation rather dealing with a crisis over the capture

⁴⁷ Marc DiPaolo, "Combat Rescue Operational Review: A Summary of Combat Rescue Operations from Vietnam to Kosovo," (Report for HQ ACC/DRMR, Pioneer Technologies, Las Vegas, March, 2001), 2-84.

⁴⁸ Ibid., 2-83.

⁴⁹ McIntyre.

of a US pilot as had happened in Somalia and Bosnia.⁵⁰ After the campaign was over, General Wesley Clark, the Supreme Allied Commander, Europe, claimed that “CSAR is more precious than stealth.”⁵¹

1. Composition of Rescue Forces

SOF assets, comprised of MH-53 and MH-60 helicopters; a ground security party of Special Tactics PJs and Combat Controllers with Special Forces support; and MC-130P tankers provided CSAR alert along with RESCORT-designated A-10 Sandys. The helicopters flew forward for alerts from San Vito, Italy, to Tuzla, Bosnia-Herzegovina, providing quicker response times. Operational control of the SOF units remained with the Joint Special Operations Task Force (JSOTF), while the A-10s and other airborne support assets (including AWACS, ABCCC, and fighter support) would fall under the CFACC. Once a CSAR mission tasking was accepted by the JSOTF, they passed TACON of the recovery assets to the CFACC. Recognizing the potential for integration problems, the helicopters and A-10s conducted CSAR exercises prior to hostilities. Due to limited asset availability, the CFACC did not make C2 aircraft or other fighters available to exercise a full CSARTF package.⁵²

2. Command and Control of Rescue Forces

The same command structure that had existed during DENY FLIGHT carried over into ALLIED FORCE. The CFACC was designated as the supported commander for CSAR operations; the Personnel Recovery Coordination Center (PRCC) was located within the Combined Air Operations Center (CAOC) at Vincenza, Italy.⁵³ Recognizing the strategic and political implications that a captured airmen could provide the Serbs, the CFACC made CSAR his number one priority should an aircraft go down.⁵⁴ The implication was, unlike the instance of Corvette 03 in Iraq, all available air assets would be brought to bear to effect a rescue attempt.

⁵⁰ Billy D. Thompson, “For Valor or Value: An Examination of Personnel Recovery Operations,” (Unpublished Research Paper, School of Advanced Airpower Studies, 1 Jun 2001), 39.

⁵¹ Michalke, “Commando Heritage.”

⁵² James C. Slife, “SOF, the CAF, and the CSAR Mission: Balkan Insights,” (Draft Research Paper, 20 Feb 2001), 11.

⁵³ DiPaolo, 2-97.

⁵⁴ United States Department of Defense, “Kosovo/Operation Allied Force After-Action Report,” (Report to Congress, 31 January, 2000), 71.

The PRCC was directed by an Air Force rescue helicopter pilot with no SOF support on his staff. CSAR plans were developed without input from the SOF elements that were tasked to conduct the actual missions.⁵⁵ Fundamental differences in philosophy about CSAR tactics between SOF and the USAF combat rescue personnel manning the CAOC would inevitably arise during mission execution.

3. Vega 31

The myth of stealth aircraft invulnerability came to an abrupt end on the evening of 27 March 1999 when an F-117, callsign Vega 31, was shot down by an SA-3. While Serb television was broadcasting images of the wreckage to a world audience, CSAR crews were scrambling to find the pilot. The helicopters, having just arrived at Tuzla, quickly refueled and launched toward the Serb border.⁵⁶ In a situation similar to Iraq, the crews had pre-planned “spider routes” that would allow them to operate inside Serb airspace and save precious minutes of flight planning.⁵⁷ The helicopters requested permission from the CAOC to execute the recovery without waiting for a CSARTF to be assembled – the single-unit method typically preferred by special operations units. The PRCC, without special operations representation, advised waiting until a CSARTF was ready, the normal method of employment within combat rescue.⁵⁸ Frustrated, the helicopters – an MH-60 escorted by two MH-53s – orbited while the CAOC gathered the package.

The CAOC, however, was unaware that the helicopters were airborne. They quickly received a request from a flight of US F-15Cs to target some unknown helicopters flying near the Serb border. After some confusion, they were properly identified as the three-ship awaiting mission execution. The lead MH-53s transponder had not given the correct reply to the fighter’s interrogation system and the results could have been disastrous.⁵⁹

⁵⁵ Slife, 12.

⁵⁶ Stuart Camp, “Dagger Point: Major Glover recalls Vega 31, Operation Allied Force,” *Commando*, 31 March 2006.

⁵⁷ “Vega 31: The Loss of #806 The Rescue” [website]; available from <http://www.f117a.com/Vega31/Vega31-2.html>; Internet; accessed 26 August 2007.

⁵⁸ Slife, 13.

⁵⁹ DiPaolo, 2-98.

The Sandys had developed their own plan. They intended to send two flights of A-10s in; the first would locate and authenticate the pilot, while the second would escort the helicopters in. The timing would require the helicopters to launch as the second flight came off their tanker and was ready to proceed into Serbia.⁶⁰

The first flight, led by Sandy 30, verified the survivor's position, and indicated that conditions were favorable for a pickup. By this time, the helicopters had been airborne for ninety minutes and were beginning to run low on fuel. The execution plan was held while an MC-130P rendezvoused on the border and topped off the helicopters.⁶¹

Once refueled, the helicopters pressed in to the survivor's location. Due to low clouds, the A-10s were unable to provide RESCORT to the ground-hugging helicopters. Despite an array of hostile fire, the rescue forces located the downed pilot and had him back in friendly hands as the sun was rising.⁶²

In the aftermath of the Vega 31 mission, the JSOTF made numerous efforts to smooth out mission execution issues within the PRCC and CAOC, including placing SOF crewmembers flying onboard the ABCCC to serve as a CSAR liaison.⁶³

4. Hammer 34

A similar scenario played out two months later when Hammer 34, an F-16, was struck by an SA-3, damaging its engine. The pilot remained with the aircraft until the engine failed, ejecting approximately 20 miles south of the enemy SAM. His wingman made contact with him and remained in the area as On-Scene Commander (OSC).⁶⁴

The PRCC relayed the information to the alert forces, which launched immediately. Again, the package was composed of an MH-60 and two MH-53 helicopters, with Special Tactics and SF aboard.⁶⁵ Based on their experience with Vega

⁶⁰ Phil Haun, "Stealth Fighter Down," *Flight Journal*, February 2005 [journal online]; available from http://findarticles.com/p/articles/mi_qa3897/is_200502/ai_n9477888/pg_1; Internet; accessed 27 August 2007.

⁶¹ "Vega 31."

⁶² Haun.

⁶³ Slife, 15.

⁶⁴ DiPaolo, 2-100.

⁶⁵ "That Others May Live: A Personal Account," [document online]; available from www.sgtmacsbar.com/Stories/ThatOthersMayLive/ThatOthersMayLive.doc; Internet, accessed 26 August 2007.

31, the rescue package pressed into Serbia without waiting for RESCORT. They searched various locations as coordinates were updated for nearly an hour until the OSC finally vectored them to the survivor, 17 miles away.⁶⁶

After spotting the pilot's infrared beacon, the MH-60 landed and the PJs brought Hammer 34 on board. The helicopters made their way back through enemy fire and all hands returned safely.⁶⁷

While the two recoveries successfully penetrated a well-trained, well-equipped air defense system and rescued two downed pilots, it is evident that there were problems with coordination. The majority of these stemmed from the interface between the PRCC and the special operations component.

The main issue was a lack of special operations expertise within the PRCC. Although there was a difference in philosophy regarding the composition of the rescue package needed for execution, the Special Operations Liaison Element (SOLE) provided to the air component was never manned sufficiently to assist the PRCC.⁶⁸ Better integration in the planning effort and support during ongoing operations would have likely eliminated the miscommunications that plagued the initial execution of the Vega 31 recovery.⁶⁹

E. SUMMARY

As SOF rapidly built-up in the late 1980s, it did so at the expense of the dedicated CSAR force. When Iraq invaded Kuwait, SOF was the only viable option to provide theater CSAR. This situation continued throughout the 1990s, where special operations forces in the Balkans again sat alert and made two successful rescues. The Air Force was in the process of slowly rebuilding its rescue assets, but these forces had their hands full supplying continuous CSAR coverage of the no-fly zones in Iraq. The JSRC had settled firmly into the CAOC, and had formed a habitual TACON relationship with SOF

⁶⁶ DiPaolo, 2-100.

⁶⁷ Rudi Williams, "Daring Rescues Snatch Pilots from Jaws of Enemy," *US Department of Defense*, [website]; available from <http://www.defenselink.mil/news/newsarticle.aspx?id=44549>; Internet; accessed 26 August 2007.

⁶⁸ Slife, 12.

⁶⁹ Ibid., 12.

supporting CSAR alert. Things changed dramatically in 2001 however, as both SOF and Combat Rescue found themselves in the midst of a new kind of fight.

III. THE “NEW” ENVIRONMENT: CURRENT PERSONNEL RECOVERY IN THE GWOT

It is hard to conceive of any country challenging the United States directly on the ground, at least for some years to come. Indeed, history shows us that smaller, irregular forces—insurgents, guerrillas, terrorists—have for centuries found ways to harass and frustrate larger, regular armies and sow chaos. ... We can expect that asymmetric warfare will remain the mainstay of the contemporary battlefield for some time.

Secretary of Defense Robert M. Gates, 18 July 2007.⁷⁰

In the years following the attacks of September 11, 2001, the US Air Force found itself facing almost no air threat in Afghanistan, and an enemy it had flown over daily for more than a decade in Iraq. The air component’s need for CSAR rapidly dwindled, while new, unexpected missions presented themselves. Rescue forces adapted quickly, however, applying their unique capabilities to the growing number of requests from other components. The continuing requirement to provide CSAR alert for the air component led to long periods of inactivity and frustration among the crews, who were on search of a way to contribute to the overall campaign.

A. ENDURING FREEDOM

Despite the Secretary of Defense’s intense interest in getting CSAR forces in position before beginning ENDURING FREEDOM, the actual forces that arrived in Uzbekistan in October to provide CSAR capability were from SOCCENT, and not CENTAF.⁷¹ Task Force DAGGER in Uzbekistan and Task Force K-BAR in the south were responsible for CSAR missions as well as their typical complement of special operations.⁷² Air Force combat rescue forces, tied to large Air Expeditionary Force

⁷⁰ Robert M. Gates, “Remarks to Marine Corps Association Annual Dinner,” (Arlington VA, 18 July 2007).

⁷¹ Adam Herbert, “CSAR, Under New Management,” Air Force Magazine, August 2003; available from <http://www.afa.org/magazine/aug2003/0803csar.asp>; Internet; accessed 21 August 2007.

⁷² Denis P. Doty, “Command and Control of Special Operations Forces for 21st Century Contingency Operations,” (Unpublished Research Paper, Naval War College, 3 February 2003), 12.

logistics packages and low on the airlift priority list, would not arrive to relieve SOF of the CSAR tasking until well over a month later.⁷³

1. Command and Control of Rescue Forces

Command and control functioned through the Joint Search and Rescue Center (JSRC), located within the CENTAF CAOC at Prince Sultan AB, Saudi Arabia. The CFACC was still the supported commander for PR operations, and SOCCENT still retained operational control of their CSAR assets. Once combat rescue units arrived, they were under the direct control of the JSRC, which also functioned as the RCC for the air component. Requests from other components traveled from the respective component RCC to the JSRC, who then had tasking authority. This was a legacy relationship from years of enforcing the no-fly zones.

2. Operations

Facing a decided lack of air defenses, PR missions in support of the air component were non-existent. It wasn't until January that the first tasking came for a recovery; an Australian SF soldier injured by a land mine was evacuated by an HH-60.⁷⁴ This was credited as the first combat save by USAF combat rescue forces since Vietnam.⁷⁵

In fact, the first 14 missions flown by combat rescue forces were to evacuate injured coalition forces, primarily SOF.⁷⁶ Although there was little need for the rescue forces by the CFACC, the on-call capabilities of the HH-60s and HC-130Ps proved useful to SOCCENT on several occasions. During Operation ANACONDA, HH-60s evacuated several critically injured soldiers from the fighting. The rescue crews knew very little about the operation and their capabilities had not been considered during the planning of Anaconda. Inclusion on the plan would have given rescue forces time to plan routings through the rugged Shah-e-Kot mountain range, appropriate fuel and weapon loads, and other contingencies prior to being alerted. More importantly, it would have

⁷³ dePalo, 7.

⁷⁴ "JSRC Current Events for Operation Enduring Freedom/ Operation Southern Watch/ Operation Iraqi Freedom," Combined Forces Air Component Command Joint Search and Rescue Center, 9 June 2003, 3.

⁷⁵ dePalo, 9.

⁷⁶ Ibid., 10.

allowed rescue forces to provide input to the ground commander as to their potential contribution to the operation should anything go wrong.⁷⁷

On the night of 12 June 2002, rescue crews were alerted in response to an aircraft crash. Chariot 55, a SOCCENT MC-130H, had crashed on departure from a dirt strip in Afghanistan. With AC-130 support overhead and a recently inserted Special Forces team on the ground, HH-60s and an HC-130P evacuated the entire crew to a Coalition medical facility.⁷⁸

The ability of the HH-60s to fly on low-illumination nights with refueling support made them very attractive for MEDEVAC missions. Of the 43 combat missions flown through June 2003, 32 were at the request of the Army's CJTF 180 (now CJTF 76), whose helicopters had very limited low-visibility capabilities and were restricted from flying in low-illumination conditions.⁷⁹ Most of these missions were for Afghan nationals and Afghan National Army members who were injured or in urgent need of medical assistance, and although these were not "traditional" rescue missions, they increased the Afghans' trust in the Coalition forces.

B. IRAQI FREEDOM

In February 2003 – for the first time since Vietnam – USAF combat rescue crews arrived in theater prior to the start of hostilities and were tasked as the primary CSAR force. The largest JSRC in history presided over the massive air operation. When major combat operations ceased, five CFACC aircraft had been lost – one to enemy action. Two crews were recovered; one was found by ground forces, and the other by combat rescue.⁸⁰

1. Composition of Rescue Forces

Three main rescue task forces were set up, each consisting of HH-60s, HC/MC-130Ps, and PJs. One was located in Jordan with counter-Scud forces, which later quickly

⁷⁷ dePalo, 8.

⁷⁸ Michael W. Wooley, "America's Quiet Professionals: Specialized Airpower – Yesterday, Today, and Tomorrow," *Air and Space Power Journal* (Spring 2005) : 60.

⁷⁹ dePalo, 11.

⁸⁰ Darrel D. Whitcomb, "Rescue Operations in the Second Gulf War," *Air and Space Power Journal* (Spring 2005) : 97.

moved forward into Iraq at H-1 and Baghdad. Another was in Kuwait with the bulk of the ground forces, and subsequently moved into Iraq at Tallil. The third was in Turkey, covering operations in support of the Kurdish north.⁸¹

2. Command and Control of Rescue Forces

The same CAOC facilities used for ENDURING FREEDOM were also used for IRAQI FREEDOM. The CFACC and JSRC were responsible for conducting both operations. Given the lack of air threat in Afghanistan and the large number of rescue forces present around Iraq (and in the JSRC), the focus was clearly on the IRAQI FREEDOM air operations.⁸²

3. Junker 14

On 1 April 2003, an F-14 crew ejected approximately 70 miles north of the Saudi Arabian border after experiencing mechanical failure. Two HH-60s launched out of their forward alert base at ArAr and proceeded to the crew's location with A-10 RESCORT. The crew was picked up and returned to ArAr uneventfully, where they boarded an HC-130P for Kuwait and return to the USS *Kitty Hawk*. This was the first rescue mission ever flown by USAF combat rescue forces to recover a downed CFACC crew behind enemy lines. It also remains the only one of its kind to date.⁸³

4. Other Operations

On 23 March, SOCCENT again found the immediate response capability of alert CSAR forces useful. A rescue task force of HH-60s, A-10s, and an HC-130P scrambled to recover critically wounded personnel in an Army SF team trapped near Baghdad. The same scenario occurred again on 7 April when a similar rescue package recovered another compromised SF team.⁸⁴

SOCCENT returned the favor the following week. After an F-15E crashed near Mosul, killing the crew, an SF team recovered the bodies and brought them to a forward alert base, where they were returned to Kuwait onboard an HC-130P.⁸⁵

⁸¹ Whitcomb, "Rescue Operations in the Second Gulf War," 95.

⁸² Ibid., 96.

⁸³ dePalo, 17.

⁸⁴ Whitcomb, "Rescue Operations in the Second Gulf War," 99.

⁸⁵ Ibid., 98. The author was the aircraft commander of the HC-130P.

The end of major combat operations in Iraq saw the majority of rescue forces redeploy home, although a small contingent remained. The need for their services, however, was low: zero mission taskings between April and October of 2004, and only seven total that resulted in lives saved. None were in support of air component missions.⁸⁶ Even the call for MEDEVAC, so frequent in Afghanistan, was rare: the Army had no illumination restrictions in the flat terrain of Iraq, and had hundreds of helicopters available.⁸⁷ Despite the lack of opportunities, the requirement for USAF rescue helicopters in Iraq remains to this day.

Although rescue forces finally were able to demonstrate their abilities in combat in Afghanistan and Iraq, they quickly discovered that the traditional missions that they had trained for were rare at best. The majority were in support of other components that relied upon the quick reaction times, long range, and technical capabilities of combat rescue forces for emergency exfiltration and MEDEVAC. These new missions were eagerly embraced by the rescue crews, but met with some resistance within the CAOC as they detracted from their doctrinal role of supporting downed aircrew.⁸⁸

C. OEF-PHILIPPINES/OEF-HORN OF AFRICA

These two operations are notable for two reasons: one, they lack a large US combat presence; and two, they are viewed largely as successful examples of how the Long War should proceed. CENTCOM commander General John Abizaid called the Combined Joint Task Force in the Horn of Africa (CJTF-HOA) “a model for how military forces might operate across the wider CENTCOM region in the future.”⁸⁹

Also noteworthy is the employment of Combat Rescue forces in both operations, which are devoid of Air Force strike aircraft. HH-60s from the 33 RQS at Kadena AB, Japan, were detailed to CJTF-510 in the Philippines to augment MEDEVAC capability. In an interesting reversal from past operations where SOF performed CSAR, Pacific Air

⁸⁶ dePalo, 18.

⁸⁷ Ibid., 18.

⁸⁸ Ibid., 6.

⁸⁹ John P. Abizaid, “2006 Posture of United States Central Command,” Senate Armed Services Committee. (Washington, DC, 14 March 2006), 32.

Forces maintained OPCON of the rescue forces, but gave TACON to SOF.⁹⁰ Figure 2 shows the command and control arrangement that existed between SOCPAC and PACAF forces. HC-130s currently maintain a “CSAR alert” for CJTF-HOA in Djibouti; in reality, they are refueling USMC CH-53 helicopters and providing opportune airlift across the region. Neither operation calls for traditional CSAR support, but the needs of the task forces and the capabilities of the rescue forces are marrying up in more innovative ways that support a broader interpretation of Personnel Recovery. If these low-visibility task force operations are indeed a model for the future, then the supporting PR tasks they require should provide a model for future PR employment.

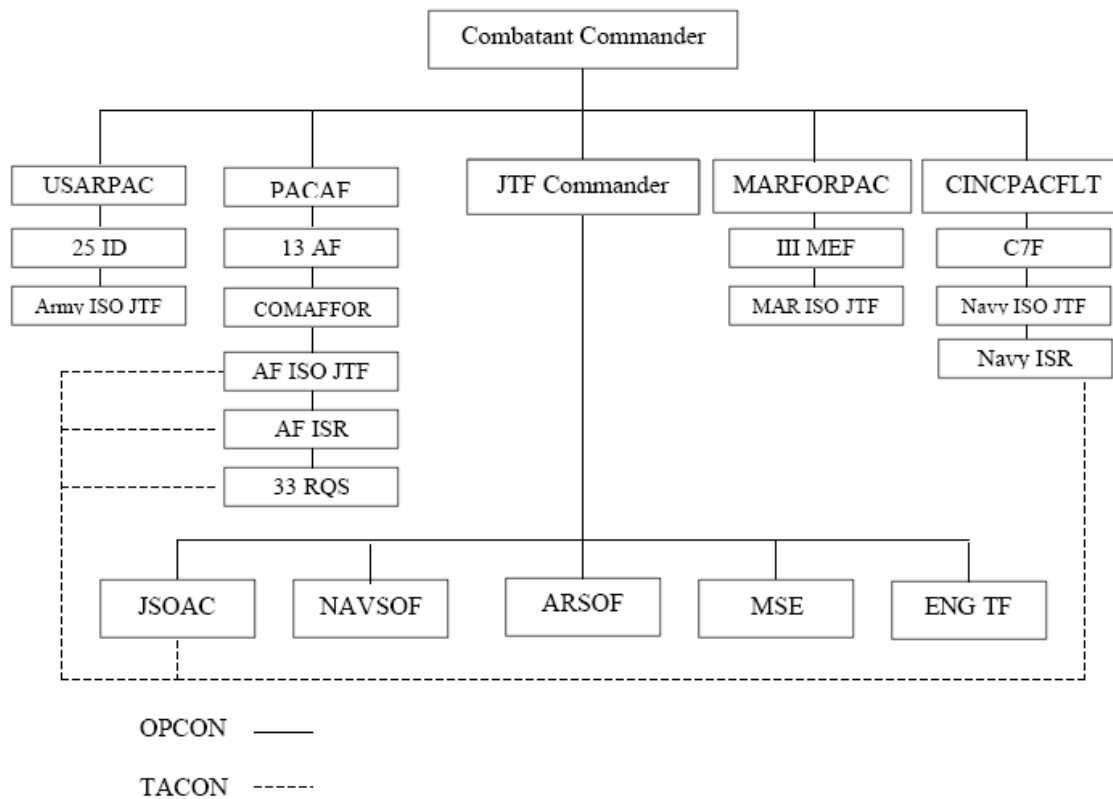


Figure 2. Command and Control Structure, OEF-P⁹¹

D. AIRCRAFT LOSS RATES

The Vietnam War represented the heyday of CSAR – many of the tactics (and aircraft) developed under fire in Southeast Asia are still in use today. The combat

⁹⁰ Doty, 16.

⁹¹ Ibid., 15.

environment, however, could not be more different than what air forces face today. The USAF alone lost 2255 aircraft during the course of the Vietnam conflict; 1737 of these were combat losses.⁹² Given that more than five million sorties were flown over Southeast Asia, the loss rate per 1000 sorties was a relatively low .431. This was much lower than in previous conflicts (see Table 1). This number is misleading, however, as it includes all sorties flown over the region, including South Vietnam, Laos, and Cambodia. If one considers only those sorties flown over defended enemy airspace – North Vietnam during ROLLING THUNDER – the loss rate jumps to 3.12.

	Sorties	Losses	Rate/1000 sorties
WWII	2362800	22948	9.712
Korea	710886	1466	2.062
Vietnam	5226701	2255	0.431

Table 1. Comparison of USAAF/USAF Wartime Loss Rates

In contrast, aircraft losses in more recent major regional conflicts has dropped sharply and remained low (see Figure 3). During low-intensity or “irregular” conflicts, it has virtually disappeared. In the past 30 years, only 18 USAF aircraft have been shot down in combat – one over Libya, 13 in DESERT STORM, one in DENY FLIGHT, two in ALLIED FORCE, and one in IRAQI FREEDOM.⁹³

⁹² John Schlight, *A War Too Long: The History of the USAF in Southeast Asia, 1961-1975*, (Washington, DC: Government Printing Office, 1996), 103.

⁹³ Multiple refs: Whitcomb, *Combat Search and Rescue in Desert Storm*, 259; DiPaolo, 2-82, 2-98; US Central Air Forces, “Operation Iraqi Freedom: By the Numbers,” Report, 30 April 2003, 3.

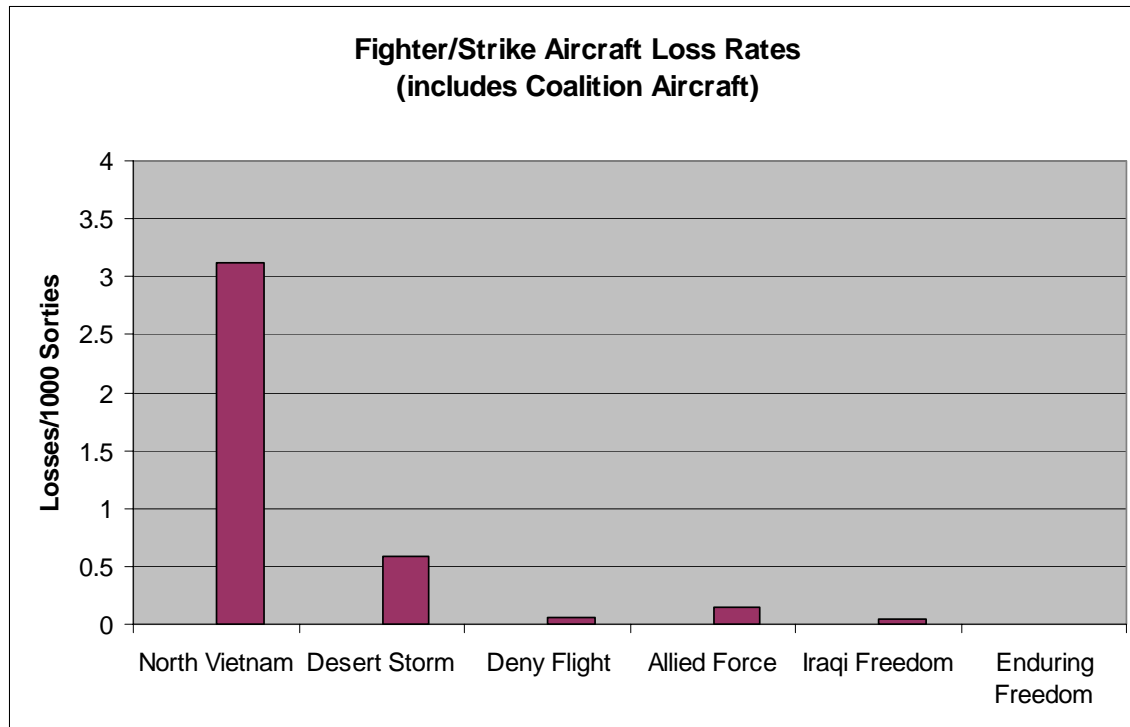


Figure 3. Loss Rates During Major Regional Conflicts

That these losses are so low, even against fairly sophisticated Former Soviet Union (FSU) air defense systems, is testament to the efficacy of USAF equipment and training, and the result of several tactical and technological innovations. Among these are:

Stealth: The ability of F-117 and B-2 bombers to strike heavily defended targets made them indispensable during the early stages of the Iraqi campaigns, and the F-22 is expected to extend that capability into the counter-air regime. Although not invisible to radar (as evidenced by the loss of Vega 31 over Serbia), stealth technology has greatly reduced the vulnerability of strike aircraft to SAMs, the leading cause of recent shootdowns.⁹⁴

Precision Weaponry: The increased use of “smart” weapons has vastly decreased the number of sorties required to strike an individual target, and reduced the requirement for more dangerous low-altitude weapons delivery. It would require 108 B-17s manned by 1080 airmen to achieve the same effects as a single strike aircraft in DESERT

⁹⁴ Daniel L. Haulman, “USAF Manned Aircraft Combat Losses 1990-2002,” (Research Paper, Air Force Historical Research Agency, 9 December 2002), 4.

STORM.⁹⁵ This has capability has been further enhanced by GPS-enabled munitions like the Joint Direct Attack Munition (JDAM). A single B-2 can drop 80 JDAMs on a single pass against multiple targets.⁹⁶ The net effect is that far fewer aircraft are required to penetrate hostile airspace to strike a particular target and less likely to be shot down.

Standoff/Unmanned Systems: Similarly, the ability of Tomahawk ship-launched cruise missiles and armed unmanned systems like the Predator and Reaper to effectively attack targets has directly removed their human operators from danger. Future unmanned combat systems would likely be used in the highest-threat areas; the Quadrennial Defense Review Report estimated that 45% of future long-range strike assets would be unmanned.⁹⁷

Attacking the Air Defense: A robust combination of electronic jamming, anti-radiation missiles, and strikes against airfields and SAMs has quickly degraded enemy air defense systems in recent conflicts. Destruction of command and control nodes has left the remaining anti-aircraft systems operating autonomously, severely hampering their ability to overcome aircraft countermeasures and defensive tactics.⁹⁸

Threat Avoidance: Simply flying above the effective altitude of air defenses has also reduced losses. After suffering a large number of losses conducting low-altitude airfield attacks in DESERT STORM, Coalition aircraft ceased employing low-level tactics.⁹⁹ A related capability is the extensive use of night vision equipment to degrade the air defense use of optically acquired or guided systems.

While these factors are sure to be countered somewhat by parallel advances in air defense technology, they point to a fundamental change in the application of air power since Vietnam: the USAF expects to immediately gain air superiority over hostile airspace,

⁹⁵ Richard P. Hallion, "Precision Weapons, Power Projection, and the Revolution in Military Affairs," (USAF Air Armament Summit. Eglin AFB, FL, 26 May 1999; available from [https://www.airforcehistory.hq.af.mil/EARS/Hallion papers/precisionweaponspower.htm](https://www.airforcehistory.hq.af.mil/EARS/Hallion%20papers/precisionweaponspower.htm); Internet, accessed 5 June 2007.

⁹⁶ "Joint Direct Attack Munition GBU- 31/32/38 factsheet," *US Air Force*, [website]; available from <http://www.af.mil/factsheets/factsheet.asp?fsID=108>; Internet; accessed 7 October 2007.

⁹⁷ *QDR Report*, 46.

⁹⁸ Haulman, 14.

⁹⁹ Clancy, 353.

then operate with relative impunity for the duration of the conflict. This assumption has been borne out by the loss rates in recent campaigns.

This low loss rate has two possible outcomes for personnel recovery forces assigned to the air component. If the cost of maintaining these forces outweighs their perceived utility (which could be considered low if rarely utilized), then they may be substantially reduced or eliminated. This would leave the air component unable to provide support to the other components – hampering ongoing operations in the near term, and forcing the reconstruction of the missing capability elsewhere in the long term. This would likely recreate the reliance upon SOF – to the detriment of other SOF missions – that occurred during the 1990s. If the air component (and Air Force in particular) maintains a robust recovery capability designed specifically for their own use, it would be grossly underutilized, suffering the attendant problems of high OPTEMPO and frustration that have plagued operations in Iraq. Within the construct of the Global War on Terrorism, PR forces are pragmatically examining ways to make themselves more relevant. One current proposal from the PR community envisions using rescue assets as a global humanitarian search and rescue force, providing a benevolent military presence in foreign countries in an effort to shape local perceptions of the US¹⁰⁰ The potential impact of these two outcomes is impossible to evaluate without understanding the future environmental context within which PR forces will operate.

E. PREDICTING THE FUTURE ENVIRONMENT

The best estimate of future US military requirements comes from the Quadrennial Defense Review (QDR). The 2006 report called for a series of sweeping changes to better position the Department of Defense to handle current and future Irregular Warfare threats, noting that enemies “are more likely to pose asymmetric threats, including irregular, catastrophic and disruptive challenges.”¹⁰¹ Among the proposed changes were major growth in SOF and an expanded role for General Purpose Forces (GFP) in

¹⁰⁰ Marc C. DiPaolo and others, “A Rescue Force for the World: Adapting Airpower to the Realities of the Long War,” *Air and Space Power Journal* (Fall 2007) : 79.

¹⁰¹ *QDR Report*, 19.

Irregular Warfare.¹⁰² While it does not dismiss the possibility of conventional threats from other nation-states, the foundational thinking of senior leadership emphasizes a shift toward non-state, networked adversaries and operating within states with which we are not at war – traits characteristic of Irregular Warfare.¹⁰³

Another important outcome of the 2005 QDR process was the directive to create an Irregular Warfare “roadmap” to guide the implementation of decisions regarding IW. The resultant IW roadmap led directly to the creation of the Irregular Warfare Joint Operating Concept (IW JOC), the first attempt to provide JFCs with guidance on developing IW strategy and prosecuting an extended campaign.¹⁰⁴ The IW JOC is now the foundation for defining IW and its constitutive activities and tasks.

F. SUMMARY

While Personnel Recovery efforts in the past decade have focused on CSAR of downed aircrews, evidence demonstrates that the actual need is very small. During unconventional, or “irregular” warfare, it becomes virtually obsolete. The experience of Combat Rescue forces in operations since 9/11 have shown a shift toward a broader conception of Personnel Recovery that involves MEDEVAC of contractors and local civilians as well as combatants, and exfiltration and refueling support of SOF. US strategy has acknowledged a similar shift toward IW, where previous assumptions of linear battlefields and visible enemies lose applicability. To employ rescue forces effectively in this new environment– and to imagine the proper role of Personnel Recovery – requires an analysis of Irregular Warfare and the application of airpower therein.

¹⁰² *QDR Report*, 44.

¹⁰³ *Ibid.*, vi.

¹⁰⁴ United States Department of Defense, *Irregular Warfare Joint Operating Concept*, (Washington, DC: Office of the Secretary of Defense, 11 September 2007), 5.

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IV. ANALYSIS OF IRREGULAR WARFARE TASKS

Increasingly sophisticated irregular methods – e.g., terrorism and insurgency – challenge U.S. security interests. Adversaries employing irregular methods aim to erode US influence, patience, and political will. Irregular opponents often take a long-term approach, attempting to impose prohibitive human, material, financial, and political costs on the United States to compel strategic retreat from a key region or course of action. ... Our experiences in the war on terrorism points to the need to reorient our military forces to contend with such irregular challenges more effectively.

2005 National Defense Strategy

The IW JOC defines Irregular Warfare as a “violent struggle among state and non-state actors for legitimacy and influence over the relevant populations,” adding that IW “favors indirect and asymmetric approaches, though it may employ the full range of military and other capabilities, in order to erode an adversary’s power, influence, and will.”¹⁰⁵ The IW JOC emphasizes the new, more politicized warfare environment where the use of force can be counterproductive, and traditional models of military engagement that disregard the population are obsolete.¹⁰⁶

A. DEPARTMENT OF DEFENSE TASKS

While “conventional” or “regular” warfare tasks involve destroying enemy forces or degrading a state’s capacity to make war, IW focuses on indirect methods of employment. The activities that comprise IW are:

- Insurgency
- Counterinsurgency (COIN)
- Unconventional warfare (UW)
- Terrorism
- Counterterrorism (CT)
- Foreign internal defense (FID)
- Stabilization, security, transition, and reconstruction operations (SSTRO)
- Strategic communications

¹⁰⁵ *IW JOC*, 6.

¹⁰⁶ *Ibid.*, 9.

- Psychological operations (PSYOP)
- Information operations (IO)
- Civil-military operations (CMO)
- Intelligence and counterintelligence activities
- Transnational criminal activities, including narco-trafficking, illicit arms dealing, and illegal financial transactions, that support or sustain IW
- Law enforcement activities focused on countering irregular adversaries¹⁰⁷

While many of these mission areas have, in the past, been the domain of special operations, a key supporting idea elucidated in the IW JOC and QDR is the need for the General Purpose Forces (GPF) to take on more SOF roles in IW. Of particular relevance here are the needs for GPF to support distributed IW operations and to conduct and support Counter-Insurgency (COIN) operations.¹⁰⁸ Historically, these are areas where airpower has made its greatest contributions to IW, and will help define where Personnel Recovery fits into the overall campaign.

B. AIRPOWER TASKS IN IRREGULAR WARFARE

In addition to the activities listed in the IW JOC, *Air Force Doctrine Document 2-3, Irregular Warfare*, provides guidance regarding the application of airpower to the problems of IW. Figure 4 depicts the activities and capabilities of airpower for IW. This includes capabilities of Air Force SOF (AFSOF) as well as conventional forces. Each will be discussed in greater detail below.

¹⁰⁷ *IW JOC*, 9-10.

¹⁰⁸ *Ibid.*, 23.

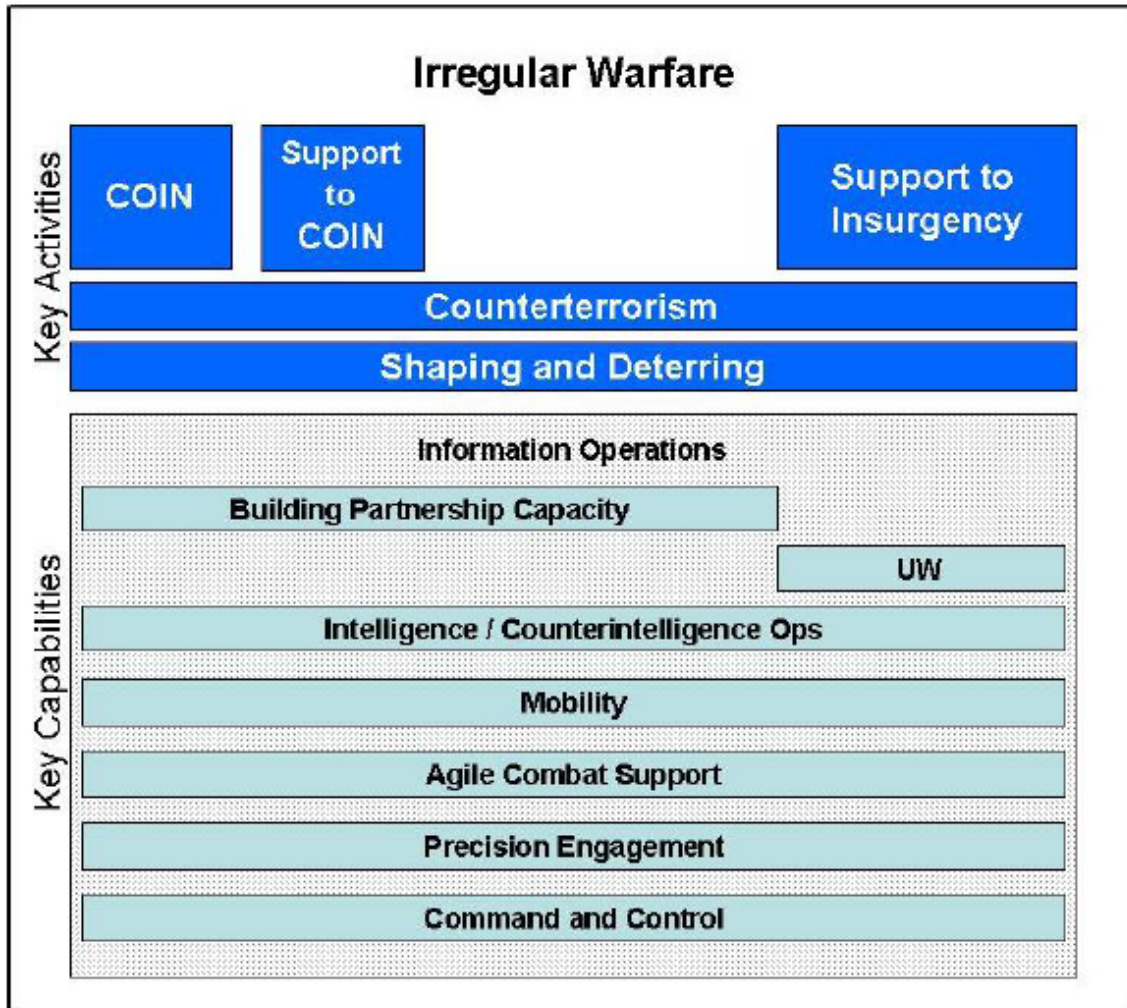


Figure 4. Irregular Warfare Model (From *AFDD 2-3*)

1. Building Partnership Capacity (BPC)

BPC is designed to improve the performance of the partner nation's defense department; in this case, the air force. While BPC encompasses security assistance, foreign military sales, and foreign internal defense (FID), the FID mission is the primary vehicle for assessing, training, advising, and assisting foreign air forces. The 6th Special Operations Squadron is currently the USAF's only dedicated combat aviation advisory unit. Recently, however, GPF have taken the lead role in training and advising the reconstituted Iraqi Air Force.¹⁰⁹

¹⁰⁹ Michael Bauer, "Training the Iraqi Air Force: Lessons from a U.S. C-130 Advisory Mission," (Washington: Washington Institute for Near East Policy, 2007), 1.

2. Intelligence

The Air Force operates an array of air-breathing and space-based assets that collect across the intelligence spectrum; when combined with sources of HUMINT, these resources provide a powerful enabler for IW operations. The vast majority of reconnaissance platforms in theater are under the control of the air component, including armed UAVs, although AFSOC is fielding its own Predator squadron and CIA has employed its own assets in the past. The ability of UAVs to provide persistent, real-time imagery for missions in progress has proven invaluable for enhancing the situational awareness and effectiveness of friendly forces.

3. Mobility

Air mobility in IW encompasses three areas: deployment, sustainment, and special operations employment. GPF have traditionally handled theater deployment and sustainment through intra-theater airlift to main and forward airbases, and airdrop to remote or inaccessible locations¹¹⁰. SOF aircraft provide infiltration, exfiltration, and resupply of U.S. and partner nation special operations. Rapid air mobility is often cited as a crucial capability for COIN operations, providing government forces an asymmetric advantage in speed and mass over insurgents.¹¹¹

4. Agile Combat Support (ACS)

Not to be confused with aerial resupply, ACS is comprised of base support and sustainment activities, such as civil engineering, EOD, and medical treatment. The Air Force possesses extensive capability to rapidly build up austere airbases and other facilities in preparation for IW activities. These forces can also provide support to local infrastructure projects to improve underlying conditions that might distance the population from the government.¹¹²

5. Precision Engagement

While indiscriminant use of force is likely to aggravate the population, highly precise munitions coupled with skilled controllers on the ground and in the air can achieve desired effects with minimum impact to the surroundings. The ability to target,

¹¹⁰ United States Air Force, *Air Force Doctrine Document 2-3, Irregular Warfare*, (Washington, DC: Headquarters US Air Force, 1 August 2007), 41.

¹¹¹ R.W. Komer, "The Malayan Emergency in Retrospect: Organization of a Successful Counterinsurgency Effort," (Santa Monica: RAND Corporation, Feb 1972), 52.

¹¹² *AFDD 2-3*, 43.

track, and strike enemy forces (usually while unobserved) reduces their freedom to move and operate, making them an easier target for the government's security apparatus.¹¹³ However, the effect of these strikes and even the presence itself of US strike aircraft on popular opinion must be considered prior to operations. The AC-130 has traditionally supplied precision fire support to SOF; today, such diverse platforms as A-10s, F-15Es, and B-52s have the ability to employ precision munitions in support of friendly troops in contact.

6. Command and Control

The Air Force's theater air control system has the ability to rapidly collate and disseminate information, allowing forces to rapidly react in dynamic environments. Utilizing this capability can greatly reduce sensor to shooter time, and help prevent instances of confusion and fratricide.¹¹⁴ Although the two are deconflicted, conventional air operations are controlled through the CAOC, while SOF aviation is typically under the direction of the Joint Special Operations Aviation Component (JSOAC).

7. Information Operations

This is a broad mission area that encompasses influence operations, electronic warfare, and network warfare, and is an essential component of an IW strategy.¹¹⁵ Conventional electronic warfare platforms possess jamming, collection, and targeting capabilities, while PSYOP typically are performed by SOF aircraft. While most airlift and some fighter aircraft have the ability to drop leaflets, AFSOC EC-130Js have radio and television broadcast capability.¹¹⁶

8. Unconventional Warfare (UW)

Although not specifically listed as an airpower capability in IW, the ability to support UW is addressed as part of supporting insurgencies. In this capacity, the Air Force has the ability to provide support to Special Forces' conduct of Unconventional Assisted Recovery operations,¹¹⁷ as pararescuemen, Combat Rescue Officers, and

¹¹³ AFDD 2-3, 22.

¹¹⁴ Ibid., 46.

¹¹⁵ Ibid., 36.

¹¹⁶ "EC-130J Fact Sheet," *US Air Force*, [website]; available from <http://www.af.mil/factsheets/factsheet.asp?id=182>; Internet; accessed 18 Nov 2007.

¹¹⁷ AFDD 2-3, 19.

Survival, Evasion, Resistance, and Escape (SERE) technicians are all capable of conducting or advising indigenous forces in UAR.

Some of these capabilities span both GPF and SOF, while others can reside more distinctly within one or the other. Figure 5 depicts where these capabilities fall along a scale between GPF and SOF.

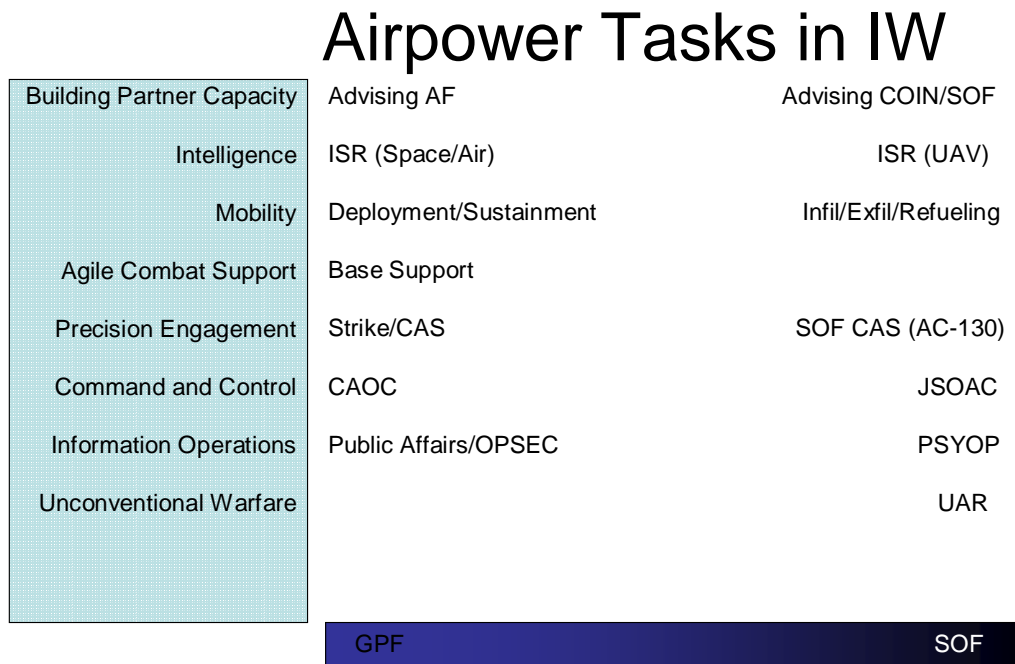


Figure 5. Spectrum of Airpower Tasks in IW

The airpower capabilities listed in *AFDD 2-3* are directed primarily at COIN operations, with some acknowledgement of UW support. An important area of IW that is addressed only in passing, however, is Counterterrorism outside of COIN. Airpower contributions to Counterterrorism are typically envisioned as Precision Engagement, reactive kinetic strikes against terrorists or supporting facilities; however, airpower can also provide Mobility and Agile Combat Support functions for Counterterrorism, particularly in response to a CBRN terrorist attack. Air component forces possess the ability to conduct recovery, treatment, and decontamination operations that may be beyond the capability of other first-responder organizations.

C. PERSONNEL RECOVERY TASKS IN IRREGULAR WARFARE

The IW JOC indicates that PR is one of the areas where GPF can provide support to globally distributed IW operations,¹¹⁸ while *AFDD 2-3* describes PR as a critical COIN support capability.¹¹⁹ Both of these publications point to the applicability of PR in IW operations, but there has been little analysis of what PR actually encompasses when conducting an IW campaign. This ad hoc approach to the employment of Combat Rescue forces demonstrates an underlying lack of knowledge regarding the PR tasks required for IW and the capabilities that rescue forces possess to execute them.

The 1 June 2005 revision of *AFDD 2-1.6*, now titled *Personnel Recovery*, acknowledges that while historically focused on the recovery of downed aircrews, Combat Rescue forces may be called upon to recover any isolated person, military or civilian. Recovering these isolated persons is the primary mission of dedicated PR forces. Additionally, *AFDD 2-1.6* enumerates several collateral missions that fall within the capabilities of Combat Rescue forces, including: casualty evacuation, civil SAR, counter-drug activities, emergency aeromedical evacuation, homeland security, humanitarian relief, international aid, non-combatant evacuation operations (NEO), support for National Aeronautics and Space Administration flight operations, infiltration and exfiltration of personnel in support of air component commander missions, and special operations missions, including PR of special operations forces.¹²⁰

If these collateral missions do not describe the recovery of “any isolated personnel”, then it is unclear what the primary mission of Combat Rescue forces is, beyond conducting CSAR for downed aircrews. As previously discussed, the probability of such an occurrence in the IW environment is extremely low, particularly when friendly troops or populations occupy the majority of the terrain. What, then, should be the mission of Combat Rescue forces in an Irregular Warfare campaign?

Using the employment of Combat Rescue forces in recent operations as a model, the list of collateral missions (minus domestic missions) provides a good starting point. These collateral missions of Combat Rescue forces – including support to UW recovery

¹¹⁸ *IW JOC*, 23.

¹¹⁹ *AFDD 2-3*, 30.

¹²⁰ *AFDD 2-1.6*, 3.

operations – and CSAR are grouped according to airpower capabilities in IW and where they fall along the GPF-SOF continuum in Figure 6.

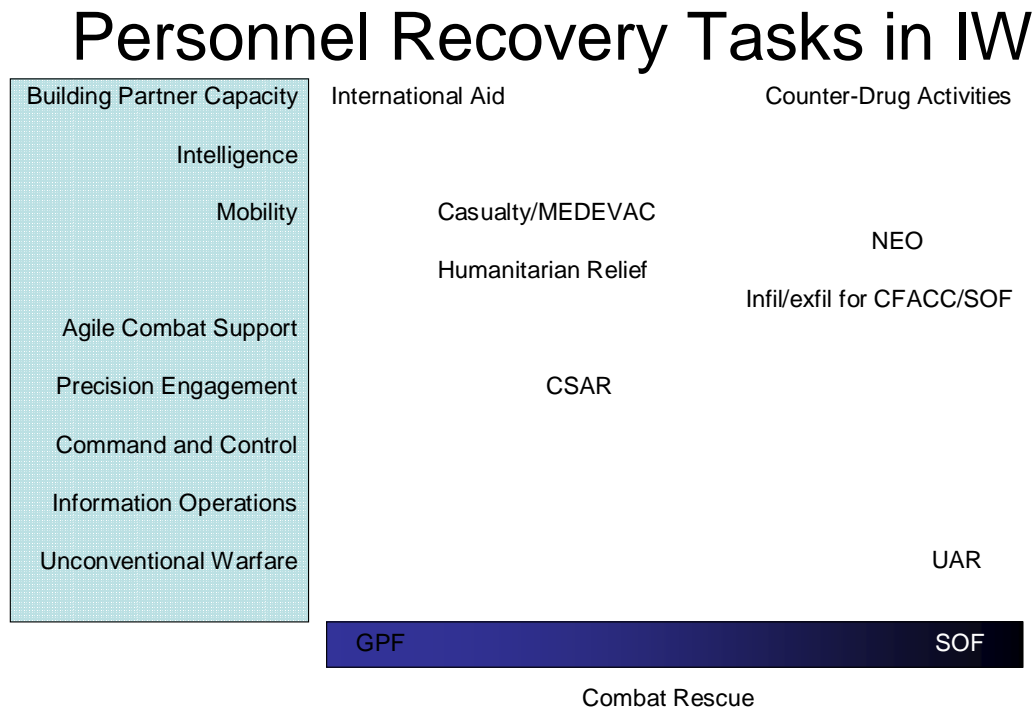


Figure 6. Personnel Recovery Tasks in Irregular Warfare

What should be apparent from this depiction is not that PR should be a SOF mission; rather, it shows that many of the tasks that PR forces will be expected to perform in an IW campaign fall outside of the areas that the air component has expertise in or control over.

D. IMPLICATIONS FOR PERSONNEL RECOVERY FORCES

Outside of CSAR, the PR tasks involved with an IW campaign have no bearing upon the tactical employment of air assets, which is the typical concern of the air component during conflict. This begs the question: can rescue forces operating under the direction of the conventional air component effectively execute the tasks required of them in the IW environment? Anecdotal evidence from recent operations would suggest not. However, if the air component can embrace the larger construct of PR that exists beyond CSAR, then the prognosis is good. If not, then alternate command and control

arrangements that have proven effective might point the way for successful employment of Combat Rescue forces in future IW operations.

Despite an expanded view of who is at risk for isolation, Air Force doctrine for Personnel Recovery is still based upon CSAR. Whether ejecting from an aircraft or encountering an IED, an isolated person is assumed to be behind enemy lines and the clock is ticking on their recovery. The emphasis on immediate response in an uncertain environment perpetuates the reliance on a large CSARTF package to fight their way in and out of the recovery area. This concept had evolved out of necessity in Vietnam, where daylight operations allowed enemy forces to accurately target aircraft and see where a pilot parachuted into the jungle, necessitating a rapid response to prevent capture. Daylight recoveries also made the rescue helicopters extremely vulnerable to hostile ground fire. The solution was to bring helicopters into the area as quickly as possible, with enough supporting firepower to suppress enemy fire until the rescue was complete.¹²¹

Special operations forces, however, relied upon avoiding detection to survive. Flying low-level at night in small packages, literally “below the radar,” on thoroughly-planned missions, SOF conducted operations that included the raid on the Son Tay prison camp.¹²² This contrast in philosophy was particularly evident later in ALLIED FORCE, where SOF recovery assets, used to operating alone, were held at the Serb border at the CAOC’s direction until A-10s could be refueled and marshaled to provide cover for the helicopters.¹²³

The Irregular Warfare environment presents several challenges to Air Force PR doctrine. First, it removes the linear nature of the battlefield, making enemy lines not only fluid, but often indistinguishable. Allied forces may occupy much of the contested territory, and be in a much better position to provide immediate recovery of an isolated person than air assets. Second, it inserts an impressionable civilian population of

¹²¹ Earl H. Tilford Jr., *Search and Rescue in Southeast Asia, 1961-1975* (Washington DC: Office of Air Force History, 1992), 54.

¹²² Leroy J. Manor, “Report on the Son Tay Prisoner of War Rescue Operation,” After-action Report, undated, iii.

¹²³ DiPaolo, 2-98.

questionable loyalty into a formerly “sterile” combat environment, where it is no longer possible to shoot first, and ask questions later.¹²⁴ In some cases, it may be more strategically advantageous to delay a recovery until it can be accomplished in a less conspicuous area or by a local force, particularly if the presence of US aircraft would inflame the population. Third, it puts the support requirements of other components on par with – or even above – the need to rescue its own forces. The assumption that the air component should be the focal point of theater PR operations – as it has during the major air campaigns since 1990 – is undermined by the COIN focus on human interactions on the ground and a reduction in air threats.

This is not to say that the air component cannot conduct effective COIN support or other IW tasks; it merely points to the diminished offensive role of airpower in IW, and the need to evaluate how it provides support to the other components. Close air support of friendly troops continues to be a critical COIN capability, for example, and it is a mission that the air component executes well. PR, however, is different: the air component is providing support for itself as well as the other components. This leads to a question of self-interest and priority. If the doctrine names CSAR as the primary function of Combat Rescue forces, can the air component be equally supportive of the other PR tasks of IW, which potentially diverts assets away from CSAR and places aircrews at risk?

Possibly. Government organizations are remarkably resistant to taking on new tasks that do not fit with their existing culture.¹²⁵ The same Air Force cultural tradition that ties PR doctrine to Vietnam demands that CSAR will be there to pick up downed aircrews. The Air Force Chief of Staff called CSAR a “moral and ethical imperative” that is “directly linked to the combat air forces and the personnel they support,” and named the acquisition of a new CSAR helicopter as the second highest Air Force budget priority.¹²⁶ Training requirements for Combat Rescue crews are based entirely upon

¹²⁴ Michael A. McNerney and Marshall V. Ecklund, “Trust, Influence, and Networks: Creating Conditions for Nonconventional Assisted Recovery in Urban Areas of the Middle East,” *Australian Army Journal* vol II (1), 69.

¹²⁵ James Q. Wilson, *Bureaucracy: What Government Agencies Do and Why They Do It* (Jackson, TN: Basic, 1989), 108.

¹²⁶ T. Michael Moseley, “Memorandum for Combatant Commanders,” 26 February 2006.

CSAR operations in hostile territory. So long as the possibility of a conventional air campaign against another nation exists, the Air Force will maintain a focus on CSAR as a strategic means of risk mitigation. IW will still be considered the “lesser included case” for rescue forces.

The examples of OEF-P and CJTF-HOA, however, show at least some acknowledgement by the Air Force of the positive contributions that Combat Rescue can make in a theater IW campaign, albeit where there is no air component CSAR requirement. The transition from air campaign to IW in IRAQI FREEDOM appears to have been more problematic; it took substantial time for the decreased CSAR requirement to translate into more constructive uses of the LD/HD rescue assets.

E. SUMMARY

While the activities that comprise Irregular Warfare lie outside of traditional employment methods, airpower can make significant contributions to an IW campaign. The asymmetric advantages in rapid mobility are especially valuable when conducting COIN operations. Similarly, Personnel Recovery support to IW looks significantly different from normal conceptions of theater CSAR. The ability of Combat Rescue forces to provide a wide spectrum of direct and indirect support to the theater IW campaign, from MEDEVAC of wounded local civilians to *in extremis* recovery of SOF, gives the JFC or JTF commander a very flexible and rapid reaction airpower tool. This wider conception of the PR umbrella still includes traditional CSAR support of downed aircrews, but the demand for CSAR in the IW environment is much lower than for other, equally important PR tasks.

The ability of the air component to execute those tasks is suspect when there is a perceived need for dedicated CSAR, as service-based PR doctrine has fostered an inevitable self-interest to rescue one’s own forces first and foremost. However, in theaters where the air presence, particularly the offensive airpower presence, is small, Combat Rescue forces have been gainfully employed by Joint Task Forces, performing a multitude of “collateral” PR tasks in support of Irregular Warfare operations. This difference in airpower focus should be mirrored in the command structure under which

Combat Rescue forces operate, shifting from the air component to the theater agency best poised to coordinate and control Personnel Recovery tasks.

V. RECOMMENDATIONS

Personnel recovery needs to transform because warfare, as we know it is transforming. Fourth generation netcentric warfare, framed by globalization, transnational groups, and mobile, decentralized operations with no definitive front, place new and greater challenges on our military commanders.

Lt Gen Norton Schwartz, Joint Staff Director of Operations
14 September, 2004.¹²⁷

USAF Combat Rescue forces provide a highly skilled and versatile tool for the JFC in an IW campaign, rapidly able to execute a wide variety of PR tasks in support of overall strategy. The Combat Rescue force, however, is small in numbers; extended alert deployments in the 1990s stretched the force very thin. Proper employment requires careful consideration of where and how these units should be incorporated into theater forces for the conduct of Irregular Warfare while still maintaining the capability to support CSAR coverage of conventional air campaigns.

A. WHERE SHOULD PERSONNEL RECOVERY ASSETS BE EMPLOYED IN IRREGULAR WARFARE?

Combat Rescue forces are likely already in place where a major air campaign has preceded or occurred in conjunction with an IW campaign, as was the case in both ENDURING FREEDOM and IRAQI FREEDOM. Once the air offensive has slowed and friendly troops occupy territory, then the role and composition of PR assets must be re-evaluated. Combat Rescue forces have the ability to operate over long distances in difficult terrain in marginal weather conditions; this capability lent itself to nighttime MEDEVAC and exfiltration missions in ENDURING FREEDOM. In Iraq, however, the generally low terrain and prevalence of friendly helicopter refueling bases erased Combat Rescue's comparative edge over other assets.¹²⁸ Accordingly, the majority of Combat Rescue forces were redeployed after major combat operations terminated. Problems

¹²⁷ Rudi Williams, "Personnel-Recovery System Needs Transformation," *US Department of Defense*, [website]; available from <http://www.defenselink.mil/news/newsarticle.aspx?id=25314>; Internet; accessed 26 November 2007.

¹²⁸ dePalo, 12.

arose for the remaining crews when they were still tied to the conventional CSAR requirement long after the environment had shifted to an IW campaign, and their expertise was not utilized for evolving PR tasks. If Combat Rescue forces are not integrated into the IW campaign plan, they should be removed from the theater once conventional operations cease and CSAR is no longer the primary PR task.

In operations where there is little or no use of tactical airpower, such as in the Philippines and Horn of Africa, Combat Rescue forces should be used in locations where they have a comparative advantage in capabilities over other GPF. This would include near- or overwater operations; support of aerial refuelable helicopters (GPF or SOF); long-range and austere base operations; employment in countries where the presence of SOF may be politically sensitive or objectionable; and areas where immediate field medical expertise is widely needed. In low or medium threat theaters, they may be used to backfill or augment SOF lift capabilities. When operating in an IW environment, the “collateral” PR tasks should dictate the size and disposition of Combat Rescue forces in theater.

B. COMMAND AND CONTROL OF PERSONNEL RECOVERY ASSETS IN IRREGULAR WARFARE

Air Force doctrine on Irregular Warfare provides contradictory guidance for command and control of PR assets. On one hand, doctrine recognizes the need for local control, claiming that “[d]ue to the localized nature of most IW enemies and specifically insurgencies, decentralized execution is vital to the successful integration of airpower.”¹²⁹ On the other hand, doctrine also requires centralized planning of LD/HD assets to prioritize competing demands from multiple operational areas.¹³⁰ This assumes that the theater air component is best suited to determine these priorities and respond accordingly. In campaigns with a robust air presence, the air component’s highest priority for PR assets will invariably be CSAR. As long as Joint doctrine mandates individual service responsibility for PR, there is no incentive for the air component to altruistically place other component requirements above its own.

¹²⁹ *AFDD 2-3*, 66.

¹³⁰ *Ibid.*, 70.

In IW operations with a small or non-existent air component CSAR requirement, control of Combat Rescue forces should be shifted to the agency that can best prioritize the PR requirements and has the capability to control assets. In some cases, this may be a SOF element, typically the JSOAC (as was the case in OEF-P) or the maritime component if conducting shipboard operations. For smaller task forces, like CJTF-HOA, the JTF/CC, J-3 or other headquarters elements may be able to dictate requirements directly. Similarly, tactical control might best be exercised by an interagency group or Embassy mission in the case of humanitarian response or non-combatant evacuations.

IW campaigns may be of long duration, and the roles and organizations will likely change during the course of the operation. Command and control of PR assets must be flexible enough to allow for changes in composition and controlling agencies over time. Allowing a single component (currently the air component) to maintain OPCON of Combat Rescue forces for the entire operation ensures continuity and centralized planning. The owning component can then detail rescue forces to the user, giving TACON to the agency best able to direct the PR tasks necessary for the IW campaign – providing decentralized execution.

C. AREAS FOR FUTURE RESEARCH

While this thesis and recommendations provide a conceptual analysis of personnel recovery within the context of Irregular Warfare, it opens up several other avenues of potential exploration. If indeed demand for “conventional” CSAR is minimal, what varying utilities does it provide for senior political leadership (risk management), military planners (strategic vulnerabilities), and individual service members (trust, morale)? Is the Department of Defense properly funding CSAR in accordance with this utility? Is the cost of a captured American higher in a conventional conflict, or IW, and what degree of risk is acceptable in either situation to attempt to rescue them? I would submit that the images of soldiers being dragged through the streets of Mogadishu had a much greater impact on U.S. policy than televised aircrew “confessions” on Iraqi television did, and that prisoners are far more likely to survive detainment by a foreign government than a non-state opposition or terrorist group. However, many issues regarding CSAR are driven by emotions and “moral imperatives” rather than thorough analysis.

If the prevalence of IW continues, then there may be a need to institutionalize some of the TACON relationships that are established by Combat Rescue forces in theater. If, for instance, CSAR requirements can be filled by SOF when other forces are unavailable, could moving Combat Rescue forces under USSOCOM still meet air component requirements while alleviating major shortfalls in SOF lift capability? Again, I am inclined to say yes, but there are institutional barriers on both sides that are not easily overcome, even if rational cost/benefit analysis were to support such a move.

Meanwhile, we must face the growing problem of Irregular Warfare with an open mind and a willingness to diverge from the authoritative guidance that is doctrine. Providing Personnel Recovery outside of a conventional campaign requires a careful analysis of the environment, and selecting the right forces to accomplish the tasks at hand. USAF Combat Rescue forces are highly capable and highly flexible – but also small in numbers, so their services must be applied to areas where they have a comparative advantage over other GPF (or SOF). Combat Rescue forces should continue to be the primary CSAR provider for air-intensive campaigns, lending support to other components when directed. In an IW environment, the other forces available to conduct potential PR tasks must be examined prior to bringing Combat Rescue forces into theater or extending their deployment. Substantial GPF presence and benign physical and threat environments reduce the comparative utility of Combat Rescue forces. Areas of limited US military presence and demanding physical environments favor the use of Combat Rescue forces.

When those forces are employed in theater, it is crucial that they are responsive to the demands of the particular theater. Passing TACON of Combat Rescue forces to the agency best able to prioritize PR tasks and control assets, regardless of component (and possibly Department or nation), applies PR capability most effectively and expeditiously. Relinquishing control of Combat Rescue forces may be conceptually difficult for the air component, but it does have precedent in the Philippines, and may ultimately prove to be more effective construct. In the end, it does not matter what uniform (if any) is worn by an aircrew, their commander, or the individuals they carry; what matters is the ability to effectively prosecute the IW campaign in support of the JFC's goals.

VI. CONCLUSION

No longer does personnel recovery just mean combat search and rescue. It's the overarching umbrella that encompasses non-conventional assisted recovery combat search and rescue, medical evacuation, casualty evacuation and non-combatant evacuation operations....One key aspect of transformation is to craft a common vision and common goals to unify the personnel recovery community.

Lt Gen Norton Schwartz, Joint Staff Director of Operations
14 September, 2004.¹³¹

This thesis begins with the idea that Personnel Recovery is much larger than CSAR, but the two are often envisioned as synonymous. The Air Force CSAR construct, initially realized in Vietnam, continues to focus primarily on the recovery of downed aircrews. Recent history, however has demonstrated two trends that challenge this mode of thought.

The first trend is precipitous drop in aircraft loss rates. Technology and tactics have combined to make the loss of a friendly aircraft an anomaly, even when flying over heavily defended territory. This brings into question the efficacy of dedicating forces exclusively for CSAR of aircrews. The Air Force has adapted somewhat, extending CSAR coverage to any friendly personnel and labeling that Personnel Recovery. However, that still ignores the reality of the second trend, the increased prevalence of Irregular Warfare.

Countering a global insurgency implies the global conduct of IW, and the doctrinal basis for rescue forces – CSAR – is of minimal applicability in the IW environment. While airpower has many important contributions to the theater IW campaign, they are largely supporting functions that have little to do with the CAOC-directed air war. This has led to a disconnect between the perceived requirement of the air component for self-CSAR and the combined force requirement for PR, leaving Combat Rescue forces under-utilized in the field.

¹³¹ Williams, "Personnel-Recovery System Needs Transformation."

Changing this mindset is a difficult task, as the Air Force still sees its primary responsibility as dominating battlespace through application of air, space, and cyber-power. IW will remain a lesser included case that relies upon skills developed for conducting conventional campaigns, and CSAR will remain the stated purpose for Combat Rescue forces. Recent operations in the Philippines and Horn of Africa, however, have demonstrated that Combat Rescue forces can ably execute PR tasks in an IW campaign, and provide a glimpse of the future. The question, then, is what is the vision for where and how Combat Rescue forces are best used?

Due to a lack of numbers, a high ratio of Guard/Reserve units, and the need to support possible conventional campaigns, Combat Rescue forces must be applied judiciously to IW campaigns. Experience suggests that operations demanding rapid response, specialized lift, and medical capabilities provide the best arena for their skills. The demand for those skills may be high, and it is crucial that theater priorities dictate the employment of Combat Rescue forces. The air component may not be in a position to evaluate what those priorities are, and if not, alternate command and control arrangements are necessary. If possible, TACON of Combat Rescue forces should be provided directly to the agency in theater that is best positioned to determine theater priorities with regard to PR tasks and possesses the capability to control assets. This may result in somewhat “unorthodox” arrangements, but puts the full benefit of a flexible airpower tool directly in the hands of a knowledgeable user.

Combat Rescue has made incredible strides since 1990, growing from no effective combat capability during DESERT STORM to the highly effective and professional CSAR force that leapfrogged into Baghdad during IRAQI FREEDOM. Maintaining a high level of CSAR capability will remain a fundamentally important mission for Combat Rescue. However, the world has changed much during the intervening years, and the environment in which wars are fought has changed with it. To remain effective, we must recognize the challenges of providing Personnel Recovery in the IW environment, and embrace a wider vision of Combat Rescue’s contribution to achieving the JFC’s goals. Just as CSAR evolved out of the jungles of Southeast Asia, Personnel Recovery must adapt to the new realities that exist in Irregular Warfare, and build upon the successes of recent years.

LIST OF REFERENCES

- Abizaid, John P. "2006 Posture of United States Central Command." Senate Armed Services Committee. Washington, DC. 14 March 2006.
- Bauer, Michael. "Training the Iraqi Air Force: Lessons from a U.S. C-130 Advisory Mission." Washington: Washington Institute for Near East Policy, 2007.
- Camp, Stuart. "Dagger Point: Major Glover recalls Vega 31, Operation Allied Force." *Commando*, 31 March 2006.
- Clancy, Tom, and Chuck Horner. *Every Man a Tiger*. New York: Berkley, 1999.
- Combined Forces Air Component Command Joint Search and Rescue Center. "JSRC Current Events for Operation Enduring Freedom/ Operation Southern Watch/ Operation Iraqi Freedom." 9 June 2003.
- dePalo, Lee K. "USAF Combat Search and Rescue: Untapped Combat Power." Maxwell AFB, AL: Air University Press, 2005.
- "Desert Shield/Desert Storm." 160th SOAR Website. Available from <http://www.nightstalkers.com/history/desert.html>; Internet; accessed 25 August 2007.
- DiPaolo, Marc. "Combat Rescue Operational Review: A Summary of Combat Rescue Operations from Vietnam to Kosovo." Report for HQ ACC/DRMR, Pioneer Technologies, Las Vegas, March 2001.
- DiPaolo, Marc C., Lee dePalo, Michael T. Healy, Glenn Hecht, and Mike Trumpfheller. "A Rescue Force for the World: Adapting Airpower to the Realities of the Long War." *Air and Space Power Journal* (Fall 2007) : 78-87.
- Doty, Denis P. "Command and Control of Special Operations Forces for 21st Century Contingency Operations." Unpublished Research Paper, Naval War College, 3 February 2003.
- "EC-130J Fact Sheet." Us Air Force Website. Available from <http://www.af.mil/factsheets/factsheet.asp?id=182>; Internet; accessed 18 November 2007.
- Gates, Robert M. "Remarks to Marine Corps Association Annual Dinner." Arlington VA. 18 July 2007.
- Hallion, Richard P. "Precision Weapons, Power Projection, and the Revolution in Military Affairs." USAF Air Armament Summit. Eglin AFB, FL. 26 May 1999.

- Available from <https://www.airforcehistory.hq.af.mil/EARS/Hallionpapers/precisionweaponspower.htm>; Internet, accessed 5 June 2007.
- Hansen, Darren T. "Combat Search and Rescue: Should it be a Joint Requirement?" Unpublished Research Paper, Naval War College, 5 February 2001.
- Haulman, Daniel L. "USAF Manned Aircraft Combat Losses 1990-2002." Research Paper, Air Force Historical Research Agency, 9 December 2002.
- Haun, Phil. "Stealth Fighter Down." *Flight Journal* (February 2005). Journal online. Available from http://findarticles.com/p/articles/mi_qa3897/is_200502/ai_n9477888/pg_1; Internet; accessed 27 August 2007.
- Herbert, Adam. "CSAR, Under New Management." *Air Force Magazine*, August 2003. Available from <http://www.afa.org/magazine/aug2003/0803csar.asp>; Internet; accessed 21 August 2007.
- "Joint Direct Attack Munition GBU- 31/32/38 factsheet." Us Air Force Website. Available from <http://www.af.mil/factsheets/factsheet.asp?fsID=108>; Internet; accessed 7 October 2007.
- Komer, R.W. "The Malayan Emergency in Retrospect: Organization of a Successful Counterinsurgency Effort." Santa Monica: RAND Corporation, 1972.
- Manor, Leroy J. "Report on the Son Tay Prisoner of War Rescue Operation." After-action Report, undated.
- McIntyre, Jamie. "A deadly helicopter accident and the debate on military readiness." Cable News Network Website. Available from <http://archives.cnn.com/2000/US/09/06/military.readiness/>; Internet; accessed 29 September 2007.
- McNerney, Michael A. and Marshall V. Ecklund. "Trust, Influence, and Networks: Creating Conditions for Nonconventional Assisted Recovery in Urban Areas of the Middle East." *Australian Army Journal* II (1) : 69-84.
- Michalke, Jeffrey S. "Commando Heritage." 1st Special Operations Wing Website. Available from <http://www.af.mil/shared/media/document/AFD-070110-237.pdf> 1/10/2007; Internet; accessed 9 July 2007.
- Minish, Timothy R. "The Joint Rescue Task Force: Dedicated CSAR Capability for the Theater CINCs." Unpublished Research Paper, Naval War College, 14 June 1998.
- Moseley, T. Michael. "Memorandum for Combatant Commanders." 26 February 2006.

- Schlight, John. *A War Too Long: The History of the USAF in Southeast Asia, 1961-1975*. Washington, DC: Government Printing Office, 1996.
- Slife, James C. "SOF, the CAF, and the CSAR Mission: Balkan Insights." Draft Research Paper, 20 February 2001.
- "That Others May Live: A Personal Account." Document online. Available from www.sgtmacsbar.com/Stories/ThatOthersMayLive/ThatOthersMayLive.doc; Internet, accessed 26 August 2007.
- Thompson, Billy D. "For Valor or Value: An Examination of Personnel Recovery Operations." Unpublished Research Paper, School of Advanced Airpower Studies, 1 June 2001.
- Tilford, Earl H. Jr. *Search and Rescue in Southeast Asia, 1961-1975*. Washington DC: Office of Air Force History, 1992.
- Tyner, Joe E. "AF Rescue and AFSOF: Overcoming Past Rivalries for Combat Rescue Partnership Tomorrow." National Defense Fellows Research Paper, Naval Postgraduate School, 1996.
- United States Air Force. *Air Force Doctrine Document 2-1.6, Personnel Recovery Operations*. Washington, DC: Headquarters US Air Force, 1 June 2005.
- United States Air Force. *Air Force Doctrine Document 2-3, Irregular Warfare*. Washington, DC: Headquarters US Air Force, 1 August 2007.
- United States Central Air Forces. "Operation Iraqi Freedom: By the Numbers." Report, 30 April 2003.
- United States Department of Defense. "Kosovo/Operation Allied Force After-Action Report." Report to Congress, 31 January 2000.
- United States Department of Defense. *Irregular Warfare Joint Operating Concept*. Washington, DC: Office of the Secretary of Defense, 11 September 2007 (Version 1,0)
- United States Department of Defense. *Joint Publication 3-50, Joint Doctrine for Personnel Recovery*. Washington, DC: Office of the Joint Chiefs of Staff, 11 May 2005 (Second Draft).
- United States Department of Defense. *Quadrennial Defense Review Report*. Washington, DC: Office of the Secretary of Defense, 6 February 2006.
- United States General Accounting Office. "Special Operations Forces: Opportunities to Preclude Overuse and Misuse." Washington, DC: GPO, May 1997.

- United States Special Operations Command. "USSOCOM History, 1987-2007." Document online. Available from http://www.socom.mil/Docs/Command_History_26Feb07webversion.pdf; Internet; accessed 13 May 2007.
- "Vega 31: The Loss of #806 The Rescue." Website. Available from <http://www.f-117a.com/Vega31/Vega31-2.html>; Internet; accessed 26 August 2007.
- Whitcomb, Darrel D. "Rescue Operations in the Second Gulf War." *Air and Space Power Journal* (Spring 2005) : 95-102.
- Whitcomb, Darrel D. *Combat Search and Rescue in Desert Storm*. Maxwell AFB, AL: Air University Press, 2006.
- Whitcomb, Darrel D. *The Rescue of BAT-21*. Annapolis: Naval Institute Press, 1998
- Whitcomb, Darrel D. "The Non-Rescue of Corvette 03." *Air and Space Power Journal* (Spring 2004) : 101-114.
- Williams, Rudi. "Daring Rescues Snatch Pilots from Jaws of Enemy." US Department of Defense Website. Available from <http://www.defenselink.mil/news/newsarticle.aspx?id=44549>; Internet; accessed 26 August 2007.
- Williams, Rudi. "Personnel-Recovery System Needs Transformation." US Department of Defense Website. Available from <http://www.defenselink.mil/news/newsarticle.aspx?id=25314>; Internet; accessed 26 November 2007.
- Wilson, James Q. *Bureaucracy: What Government Agencies Do and Why They Do It*. Jackson, TN: Basic, 1989.
- Wooley, Michael W. "America's Quiet Professionals: Specialized Airpower – Yesterday, Today, and Tomorrow." *Air and Space Power Journal* (Spring 2005): 59-66.

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